

LITERATURE OF MANUFACTURERS

Catalogues, bulletins and other direct advertising material recently issued. Manufacturers are requested to send copies of new trade literature promptly to Electric Refrigeration News.

American Soda Fountain

Catalog No. 97 offered by the American Soda Fountain Co., Watertown, Boston, Mass., shows its complete line of soda fountains designed for installation with mechanical refrigeration. Models in the Tandem Innovation, Simplex and Innovation lines are illustrated in the catalog. Construction and equipment are also discussed. A number of photographs show soda fountain installations made by this concern.

Champion

Three self-contained units and two apartment models are illustrated in a circular issued by the Champion Electric Co., Chicago, Ill. The self-contained units have food capacities ranging from 4 cu. ft. to 7.5 cu. ft., while the apartment models have capacities of 4 and 5½ cu. ft., respectively. Compressor units with motors ranging from 1/6 to 1½ hp. are also shown in the circular. In addition, the Champion line of cooling coils for domestic and commercial installations is also illustrated.

Flexo Tray

A small folder issued by G. M. Dwelley, Inc., Detroit, Mich., distributors of Flexo Tray, describes the method of removing ice cubes from the rubber tray which fits into the tray of the cooling chamber.

Freezel

Seven cabinet models are included in the new line announced by the Freezel Corp., Gardner, Mass. Three are all-porcelain models, three have porcelain interiors and enamel exteriors and a small model with a food capacity of 5 cu. ft. has an enamel interior and exterior. Two compressor and cooling units are also illustrated.

C. V. Hill & Co., Inc.

Three brochures and a small booklet sent in by the C. V. Hill & Co., Inc., Trenton, N. J., are devoted to a description of the Dry-Cold line of commercial refrigerators, wall coolers and display cases. General specifications of refrigerators are given in the booklet and a cross sectional diagram illustrates the construction of the display cases.

Mechanicold

How Mechanicold soda fountains are made is described in a catalog issued by the Liquid Carbonic Corp., Chicago, Ill. The first steps from the cutting of the marble in the quarry to the final finishing of the fountain are covered in this description. A number of drawings show various parts of the soda fountain. Diagrams are used in connection with each photograph to show the layout of each fountain.

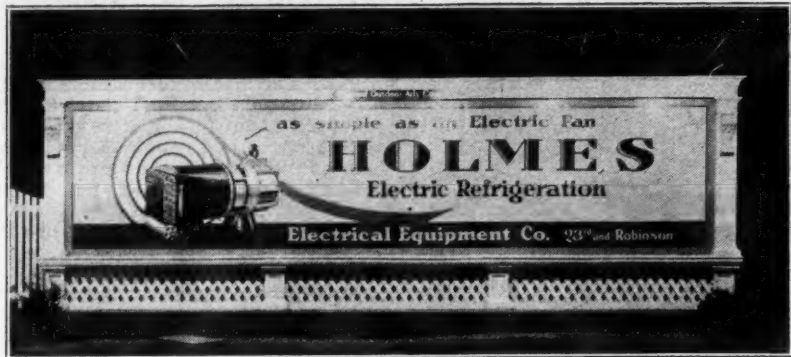
Norge

A bulletin issued by the Norge Corp., Detroit, describes the tests that have been and are being made with a Norge compressor which is called the "Norge Marathon Unit." This machine according to the bulletin is now in its third year of continuous operation. It is operating under a heavy load and high pressure which makes each year under these conditions equivalent to four years of actual service.

H. R. Van Deventer, Inc.

Bulletin A issued by H. R. Van Deventer, Inc., New York, N. Y., describes the services offered by this concern. These include business surveys and reports, investigations, opinions, financing, merchandising, sales and advertising service in the following lines of business: electric refrigeration, electrical and radio apparatus, telephone, automotive and motion picture equipment.

Electrical Equipment Co., Oklahoma City Erects First Holmes Poster



The painted poster pictured above is the first illuminated board erected to feature the new Holmes electric refrigerator.

NEW DEALERS & DISTRIBUTORS

Recent appointments announced by manufacturers and new sales outlets reported from the field.

Servel

Distributors:
C. W. Woodhouse, Indio, Calif. (Electrolux)
Wyandotte County Gas Co., Kansas City, Kan. (Electrolux)
Northern States Power Co., Winona, Minn. (Electrolux)
Northern Indiana Public Service Co., Frankfort and Peru, Ind. (Electrolux)
Central States Gas Co., Vincennes, Ind. (Electrolux)
Liberal Gas Co., Liberal, Kans. (Electrolux)
Owensboro Gas Co., Owensboro, Ky. (Electrolux)
Moore & Stewart, Gastonia, N. C. (Servel)
Hudson-Morgan Electric Co., Inc., Lynchburg, Va. (Servel)
Dickson-Sadler Co., Clarksville, Tenn. (Servel)
Hardware Products Co., Sterling, Ill. (Servel-Electrolux)

Dealers:
Sumter Gas & Power Co., Sumter, S. C. (Electrolux)
Ypsilanti Gas Dept., Ypsilanti, Mich. (Electrolux)
R. E. Lynch, 2916 Beacon Ave., Seattle, Wash. (Servel)
Shasta Electric Co., Redding, Calif. (Servel-Electrolux)
Kessler Radio Home, Dayton, Ohio. (Electrolux)
Mohawk Tire & Battery Service, Cincinnati, Ohio. (Electrolux)
Paul Soellner, Cincinnati, Ohio. (Electrolux)
Kestler's Radio Service, Cincinnati, Ohio. (Electrolux)
Andrewartha Electric Co., Lockhart, Texas. (Electrolux)
Imfeld Music Co., Hamilton, Ohio. (Electrolux)
C. and D. Radio & Supply Co., Dayton, Ohio. (Electrolux)
Middletown Radio & Electric Co., Middletown, Ohio. (Electrolux)
Mueller & Brackman Radio Co., Overland, Mo. (Servel)
G. E. Parker Gas Appliance Co., Riverside, Calif. (Electrolux)
Vicksburg Gas Co., Vicksburg, Miss. (Electrolux)
Fred Arkenberg, Hudson, N. Y. (Servel)

Kelvinator of Canada, Ltd., London, Ont.

Dealers:
John McFaul & Son, Ltd., La Chute, Que.
Shelburne Ship Builders, Ltd., Shelburne, N. S.
Titchbourne Bros., Ltd., London, Ont.
Lampel & Zierler, Sarnia, Ont.
Elmer Oesch, Zurich, Ont.
Mistele Hardware, Rodney, Ont.
Trumble Electric Co., Swift Current, Sask.
Dickie's Radio & Electric Service, Moncton, N. B.
C. E. Allison, Goderich, Ont.
Wentworth Radio & Auto Supply Co., Ltd., Hamilton and Toronto, Ont.
Wells Hardware Co., Ltd., Fort Frances, Ont.
Campbell Heating Co., Kenora, Ont.
J. Russell Walker, Portage LaPrairie, Man.
Lunenburg Foundry Garage Co., Ltd., Lunenburg, N. S.

Sparklets, Inc., New York, N. Y.

Distributors:
Zerozone Corp., 157 N. Michigan Ave., Chicago, Ill.
Rich Electric Co., 1002 Olive St., St. Louis, Mo.
Dealers:
Fall Mountain Electric Co., 89 Broad St., Boston, Mass.
R. E. S. Swam & Co., Hanover, Pa.
Zollinger-Harned Co., Allentown, Pa.

Subscription Order

ELECTRIC REFRIGERATION NEWS,
550 MACCABEES BUILDING, DETROIT, MICH.

Please enter subscription to Electric Refrigeration News.

United States and Possessions:

☐ \$2.00 per year. ☐ Three years for \$5.00.

All other Countries:

☐ \$2.25 per year. ☐ Two years for \$4.00.

I am enclosing payment in the form of

☐ Check ☐ P. O. Order ☐ Cash

Name.....

Street Address.....

City and State.....

Remarks.....

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912.

of ELECTRIC REFRIGERATION NEWS, published every two weeks at Detroit, Michigan, for April 1, 1929.

STATE OF MICHIGAN,
COUNTY OF WAYNE,

Before me, a Notary Public, in and for the State and county aforesaid, personally appeared George N. Congdon, who, having been duly sworn according to law, deposes and says that he is the Business Manager of the ELECTRIC REFRIGERATION NEWS and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

Publisher, Business News Publishing Company, 550 MacCabees Building, Detroit, Mich.
Editor, F. M. Cockrell, 18090 Wildemere Ave., Detroit, Mich.

Managing Editor, Hugh J. Moore, 59 Seward Ave., Detroit, Mich.

Business Manager, Geo. N. Congdon, 11 Farland Park, Highland Park, Mich.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.)

Business News Publishing Co., 550 MacCabees Building, Detroit, Mich.

F. M. Cockrell, 18090 Wildemere, Detroit, Mich.

H. A. De Lashmuth, Castle Hill Apts., Philadelphia, Pa.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.)

None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; and also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the six months preceding the date shown above is: (This information is required from daily publications only.)

GEORGE N. CONGDON.
(Signature of editor, publisher, business manager, or owner.)

Sworn to and subscribed before me this 4th day of April, 1929.

SEAL. (My commission expires Aug. 27, 1930.)

REQUESTS FOR INFORMATION

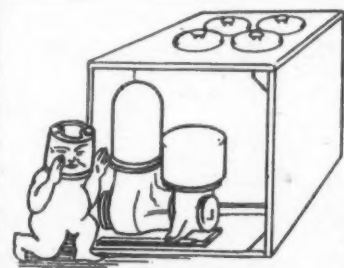
Readers who can assist in furnishing correct answers to inquiries or who can supply additional information are invited to address Electric Refrigeration News, referring to the query number.

Ice Cube Trays

Query No. 233—A manufacturer of electric refrigerators writes, "Would like to get in touch with a stamping firm who has dies for a six pound ice tray of standard size."

Servicing Electric Refrigerator

Query No. 234—A reader in Pennsylvania asks, "Could you please furnish us with the names of any companies in Philadelphia who are in a position to service the compressor assembly of an Electric refrigerator."



Owens Valve Silencer for NIZER COMPRESSORS

STOPS those complaints about noise and makes happy dealers. Ice Cream Manufacturers save expensive returns of cabinets to repair shop.

The OWENS SILENCER is attached to the cylinder head in two minutes when overhauling the compressor. It floods the valve with oil and not only quiets the valve but KEEPS it quiet. Positively stops that pounding caused by worn or misadjusted valve stops.

Learn what OWENS SILENCER can do for your noisy Nizers. Send for information or better for a sample and be convinced by your own ears.

List price \$4.00. Discounts in quantities.

KELRAY LABORATORY

3940 Gibson Street, Detroit, Mich.

Every Cylinder Analyzed Absolutely Pure Bone Dry for DIRECT CHARGING

also Ton Drums Tank Cars

ANSUL CHEMICAL COMPANY
MARINETTE WISCONSIN

ELECTRIC REFRIGERATION NEWS

The business newspaper of the refrigeration industry

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DETROIT, MICHIGAN, MAY 8, 1929

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1927, at the Post Office, Detroit, Michigan.

PRICE FIFTEEN CENTS

A. S. R. E. ANNOUNCES PRELIMINARY PLANS FOR SPRING MEETING

Delegates Will Reside in Penn.
State College Dormitories

THE committee in charge of the annual spring meeting of the American Society of Refrigerating Engineers to be held at Pennsylvania State College, State College, Pa., June 20-22, announces that plans are progressing rapidly. All meetings will be held in the assembly room of Varsity Hall.

Exhibits at the meeting will be located in the Mechanical Engineering laboratory and the Thermal plant. A partial list of exhibitors now includes: Armstrong Cork & Insulation Co.; Carrier Engineering Corp.; Mueller Brass Co.; Frigidaire Corp.; Builders Iron Foundry; National Tube Co.; X. L. Refrigerating Co.; Linde Air Products Co.; Savage Arms Co.; Servel, Inc.; Safety Car Heating and Lighting Co.; General Electric Co.; International Nickel Co. and the Haven Manufacturing Co.

During the meeting, members and their families will reside in the various college dormitories. Varsity and Watts Halls will be devoted exclusively to men. All the rooms in these two buildings are equipped with two beds and can be occupied either single or double. As in most college dormitories, these rooms have no connecting baths. However, there are several lavatories with showers on each floor.

For family groups, quarters will be assigned in the Women's Building. This building has many double rooms, and a few suites, which consist of bedroom and sitting room. All meals will be served in Varsity Hall dining room, beginning Wednesday evening, June 19, and will include luncheon Saturday noon, June 22. The meals will be prepared and served under the direction of the regular college staff.

A fixed fee, not to exceed \$30 will be charged. This will cover every expense, including meals, banquets, rooms, entertainment, etc., and will be payable in advance. For those who cannot stay for the entire program, the committee in charge will make an adjustment of the above rate. Hotel accommodations may also be secured at Bellefonte, a few miles from the college.

A local committee under the chairmanship of Mrs. A. J. Wood is arranging for the entertainment of the ladies during the technical sessions. The program of this committee, up to the present, calls for a reception on the first day and a tea at the home of the president of the college on the second day. The committee is also planning some special activities for the ladies at the picnic-outing and the banquet.

The entertainment committee has provided for some very special social attractions during the meeting. Thursday afternoon there will be an outing at Colerain Forge, near Spruce Creek. This will include a number of social contests, a visit to the ice caves, located near State College, and a picnic supper.

Friday evening, there will be an informal banquet in MacAllister Hall. The features at this dinner now include an orchestra composed of students of the college, a marimba concert and a sleight-of-hand performance. There will also be a few well known speakers. Dancing, with the music furnished by the college orchestra, will follow the dinner.

Visitors' privileges to the 18-hole college golf course, near headquarters, and the 9-hole country club course, three miles away will be available. There will also be opportunities for horse back riding, swimming and tennis. A number of these were obtained through the courtesy of Hugo Bezdek, director of physical education and athletics at Penn State College.

NEW FRANKENBERG REFRIGERATION CO. FORMED IN ILLINOIS

JULIUS F. SEIB, president of the Modern Die & Plate Co., Belleville, Ill., announce that his company has purchased the patterns and patents of the Frankenberg Refrigeration Co. of Milwaukee, Wis., and will manufacture commercial refrigerating machines at its plant in Belleville. The new company has been incorporated under the name of the Frankenberg Refrigeration Co., and all stock is being held by the Modern Die & Plate Co.

Production of one and two-ton ammonia machines is to be started immediately, and quarter-ton and three-eighths ton sulphur dioxide machines will also be placed on the market in a short time.

Jill Frost Serves Her Guests From an Electrolux In Striking Window Display



Garden effects for window displays are especially popular in England where every little grass plot is cultivated. This Electrolux display is a combination of cut-outs and painted backdrop, with a real refrigerator. The Electrolux Icicle Lady—Jill Frost—carrying a tray of cool drinks, is always a feature in English Electrolux advertising.

JOHNS-MANVILLE AND AMERICAN RADIATOR PLANNING TO MERGE

Negotiations are taking place pointing to the consolidation of large building supply interests, with the American Radiator Co., Johns-Manville Corp. and the Standard Sanitary Corp. as the nucleus, according to the *New York Times*, which states, "That the belief of a merger is strengthened by the election of Clarence M. Woolley, chairman of the American Radiator Co., to the directorate of the Johns-Manville Corp. Francis D. Bartow, a partner of the J. P. Morgan & Co., and Jackson E. Reynolds, president of the First National Bank, were recently elected directors of the American Radiator Co. J. P. Morgan & Co. have a large interest in both companies."

GEORGIA POWER HITS \$91,985 MARK ON FIRST DAY OF DRIVE

Georgia Power Co., Atlanta, Ga., reports sales amounting to \$91,985 for the first day of the \$750,000 General Electric refrigerator drive, which was inaugurated on May 1. The campaign includes 52 selling days and will come to a close on June 30.

Sales by the Atlanta stores on the opening day totaled \$43,301, or 11.55 per cent of their quota, while the outside districts reported sales amounting to \$48,684, or 12.95 per cent of their quota.

KELVINATOR APPOINTS CAMPBELL WOOD TO DIRECT UTILITY SALES

Campbell Wood, former field sales manager of Kelvinator's eastern division with headquarters at Philadelphia, has been transferred to the Detroit home office as director of utility sales.

Wood, who originally joined Kelvinator in 1925 to organize the commercial department, came to the organization from General Motors Corporation where he was manager of the motor equipment division. Prior to this connection he was for a number of years with Western Electric.

Kelvinator, Copeland and Servel Show First Quarter Profits

SERVEL \$176,478

SERVEL, INC., Evansville, Ind., for the first quarter of this year reports a profit of \$176,478 after interest and charges, against a net loss of \$160,441 in the first three months of 1928.

In January, the profit before interest charges was \$26,861 as compared with a loss of \$50,119 in January, 1928. February profit amounted to \$57,106, against a loss of \$58,632 in February, 1928. In March, profit before interest was \$123,306 in contrast with a loss of \$6,000 in the same month a year ago.

COPELAND \$60,886.27

COPELAND PRODUCTS, INC., Detroit, manufacturers of refrigerating systems, report net earnings of \$60,886.27 for the quarter March 31st. E. H. Brown, vice president and treasurer of the company, says in relation to the report, "This is a consolidated statement and represents a considerable improvement over the same period of 1928. Ample reserves have been provided against contingencies shown by last year's operations to be necessary or advisable."

"March shipments showed an increase in dollar volume of more than 40 per cent over March one year ago. April volume exceeded last April by 52 per cent

and was higher by 36 per cent than any previous month in Copeland history.

"Orders already on hand indicate another record-breaking month in May. On May 1 orders received for immediate shipment were more than twice the number ever before received in a single day. The Copeland factory has been working day and night since early in February."

KELVINATOR \$273,250

KELVINATOR CORP., Detroit, reports for the quarter ended March 31, 1929, net profits, after all charges, depreciation and interest, amounting to \$273,250.00, as compared with a profit of \$3,790.00 in the corresponding quarter of 1928, as follows:

	1928	1929
Gross Profit	\$1,177,343.62	\$1,495,791.00
Total Operating Expense	959,613.66	1,039,505.00
Operating Profit	\$217,729.96	\$456,286.00
Other Deductions	213,939.53	183,036.00
Normal Net Profit	\$3,790.43	\$273,250.00

In addition, abnormal manufacturing expenses, deferred at the end of the first quarter on account of the low seasonal production of that quarter, have been entirely absorbed during this second quarter, whereas, at March 31, 1928, \$555,914.17 of such deferred charges still remained to be absorbed. Taking this item into consideration, the operations of the company for its fiscal year to date show an improvement over the first six months of the previous year of \$879,450.

Of Special Interest in This Issue

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Coming—Three Big Issues
May 22, June 5, and June 19

FEATURING: Merchandising methods of central stations, the National Electric Light Association convention, and the Spring meeting of the American Society of Refrigerating Engineers.

NEW REFRIGERATION DIVISION OF N. E. M. A. TO MEET ON MAY 21

UNFAIR competition and price discrimination, policy relations, purchasing and cost accounting, will be among the principal topics discussed at the two general sessions of the Policies Division of the National Electrical Manufacturers' Association to be held on May 18 and May 20 during the spring meeting of that Association at Hot Springs, Va. The sessions of the Policies Division immediately precede the spring meeting which will close on May 25.

Huntington B. Crouse, president, will address the first meeting on May 18 on the general subject of N. E. M. A. Other members will speak on various phases of policy relations with other organizations. These addresses will include one by W. E. Sprackling, vice-president in charge of the N. E. M. A. Supply Division, on the National Electrical Code and another on "Unfair Competition and Price Discrimination as Affected by the American Can Company Decision," by Harold Smith, general solicitor of the Westinghouse Electric & Mfg. Co.

Edward T. Gushee, purchasing agent for the Detroit Edison Co. will speak at the second general session, May 20, on "Buying Electrical Products."

The subject of cost accounting will be discussed in an address by Thomas W. Howard of the U. S. Chamber of Commerce.

The newly organized Refrigeration Division of the N. E. M. A., consisting of manufacturers of domestic and commercial systems who were formerly members of the Refrigeration Manufacturers' Council, will meet with the entire N. E. M. A. organization for the first time, Tuesday, May 21. T. K. Quinn, of the General Electric Company is chairman of the Refrigeration Division, George W. Mason, of Kelvinator Corp. is chairman of the Domestic section and John D. Hollowell, of the Dole Refrigerating Machine Co. is chairman of the Commercial section.

N. E. L. A. CONVENTION TO OPEN WITH THREE LARGE CELEBRATIONS

Exposition in New Auditorium
Opens On May 31

THREE celebrations will anticipate the opening of the annual National Electric Light Association convention which will be held in Atlantic City, N. J., June 3-7. On May 31, the international celebration of the Golden Jubilee of Light will be inaugurated. Atlantic City on this same day will commemorate its Diamond Anniversary as a duly incorporated community, as well as celebrate the opening of the Atlantic City auditorium, the largest convention hall in the world. To take advantage of these festivities which will bring thousands of people to the resort city, the N. E. L. A. exhibition will open on May 31, at which time the exhibits may be inspected from the balcony of the new auditorium. On Saturday, June 1, the exhibits will be open to public inspection from noon on.

The exhibition will be much larger, presented magnificently, and may be viewed and inspected conveniently.

On the convention program there will be four general sessions; one each on the mornings of Tuesday, Wednesday, Thursday and Friday. The accounting and engineering section sessions will be held in parallel on Tuesday afternoon; the commercial section session on Wednesday afternoon and the public relations section session on Thursday afternoon. The public policy session will be held on Thursday evening.

The morning sessions will convene promptly at 10:00 a. m.; the afternoon sessions at 3:00 p. m. and the public policy session on Thursday evening at 8:30 p. m. These sessions will be called to order promptly at the hours stated.

NORGE SHIPMENTS SHOW BIG INCREASE

K. M. Schaefer, general sales manager of the Norge Corp., Detroit, reports that Norge orders shipped during the first quarter of this year showed an increase of 248 per cent over the same period in 1928.

Kelvinator Announces Factory Service Schools

The Kelvinator Corp., Detroit, will hold domestic, commercial and ice cream cabinet service schools during the months of May and June. The various

schools are scheduled to open as follows: Domestic, May 13 and 27, June 10 and 24; Commercial, May 20, June 3 and 17; Ice Cream Cabinet, May 27 and June 24.

Philadelphia and surrounding territory uses as much gas in six months as Italy in an entire year.—*Current News.*

KELVINATOR SHOWS APRIL SHIPMENTS 100% ABOVE 1928

KELVINATOR Corp. of Detroit reports that shipments of refrigerators and refrigerating equipment in April were 100 per cent greater than in April, 1928, and 24 per cent ahead of last month which was also a record month, shipments being double those of March last year.

Every department of the business reports increased sales and shipments; domestic, apartment and builders, commercial, dairy equipment, and water coolers.

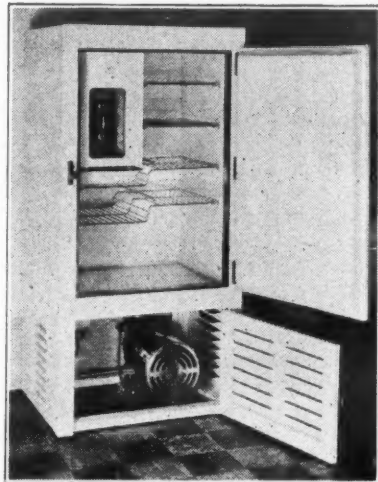
H. W. Burritt, vice-president in charge of sales, in making the above report, stated that this new and phenomenal increase in business represents a great dealer and public acceptance of the new product which is most pleasing to the entire management and distribution forces.

He further stated that new Kelvinator features, including the silent mechanism produced under rigid precision requirements in the Kelvinator plant, the attractive features of trim and fittings, and such new accessories as flexible rubber trays for quick removal of ice cubes, have greatly enhanced the sales and shipments of the new Kelvinator.

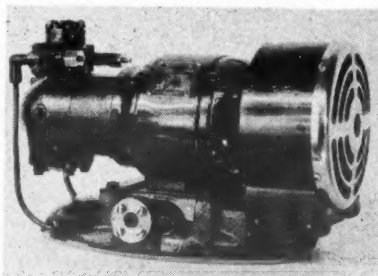
Anticipation for May and June sales and shipments is greatly in excess of any previous year's record and perhaps more easily attainable, because May and June are volume months for refrigerator selling.

WHITEHEAD OFFERS NEW DOMESTIC UNIT

The Whitehead Refrigerator Co., Detroit, a division of the Whitehead & Kales Co., announces a new domestic model designed for installation in small homes and apartments. Dimensions of the cabinet are height 49 in., width 23 in., and depth 20 in. This model has



Whitehead 4.5 cu. ft. Model for Apartments and Small Homes.



The New Whitehead Condensing Unit With 1/4 hp. Motor.

approximately 4.5 cu. ft. of storage space and shelf area of 9 sq. ft. The cooling unit has four trays with a combined capacity of 48 ice cubes.

The exterior of the cabinet is finished in white lacquer, while the interior is finished in white enamel, with the exception of the bottom part of the food chamber, which is baked white porcelain. Pure cork board insulation is used, and all joints are sealed with hydrolene and encased with insulating fibre.

A direct drive compressor is used with this model. Motor, compressor and fan are mounted on one shaft. The motor has a rating of 1/4 horsepower. Methyl chloride is the refrigerant.

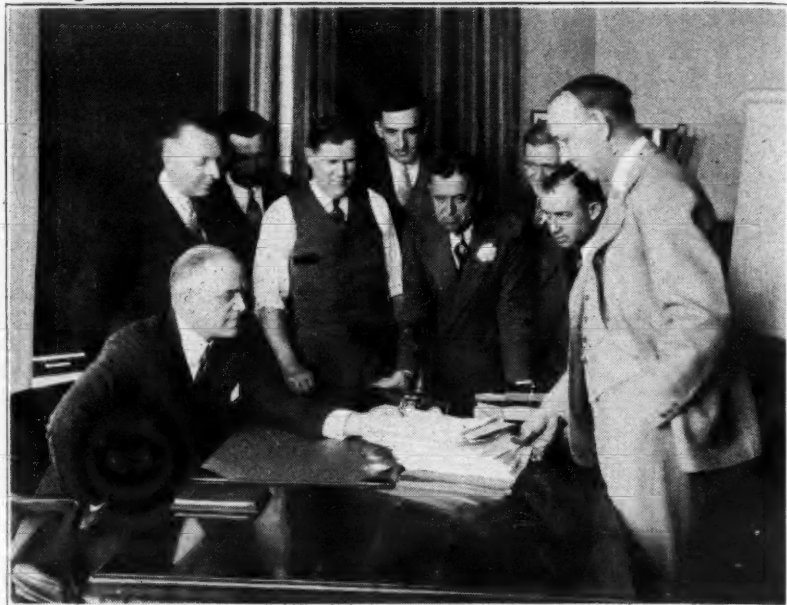
MANUFACTURERS OF ICE CREAM CABINETS

We will build Ice Cream Cabinets to your design ready for installation of compressors

REPLACEMENT PARTS FURNISHED

MOTORS METAL MFG. CO.
5936 Milford St. - Detroit, Mich.

Copeland Men Turn in 1054 Orders On Ruthenburg Day



Copeland Products, Inc., Detroit, on May 1 celebrated Ruthenburg Day in honor of its new president, Louis Ruthenburg. At this time orders for May shipments were sent in by dealers and distributors. The photograph above shows Copeland men presenting Mr. Ruthenburg with 1054 orders.

Left to right—Seated, Louis Ruthenburg, president; F. N. Pattison, sales dept.; Ben Watkins, purchasing agent; Sam Taylor, production manager; E. L. Barger, service manager; E. H. Brown, treasurer; A. M. Taylor, advertising manager; W. S. Race, assistant advertising manager, and C. M. Hadden, of the executive staff.

FRIGIDAIRE PLANTS OPERATING AT 20% ABOVE CAPACITIES

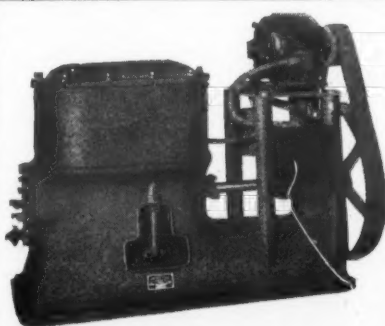
PLANTS of Frigidaire Corp., Dayton, O., are operating at 20 per cent above maximum rated capacity and nearly a month behind orders as a result of the largest increase in unit retail sales the corporation has ever experienced. When placed in operation in 1927, the present factories, comprising 53 acres of floor space, were estimated as ample to meet requirements of the business for a long time.

A total of 1,501 carloads of finished products were shipped in April, 1928, unit shipments last month showed an increase of 129 per cent in household electric refrigerators, 85 per cent in compressors and 88 per cent in cooling coils for both household and commercial use.

The Frigidaire cold control recently introduced, and lower priced models, have stimulated sales, and May indications point to another record breaking month, E. G. Biechler, president and general manager, said.

SURECOLD SHIPMENTS TREBLED DURING APRIL

Production and shipments, according to E. L. Warner, of Surecold electric refrigeration systems by the Warner Steel Products Co., Ottawa, Kans., during the month of April, were nearly three times more than for the corresponding month a year ago.



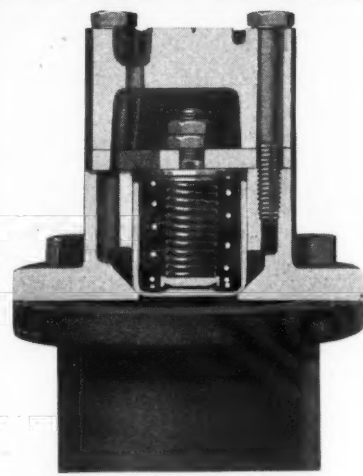
Electric Refrigeration Distributors and Dealers

You need the PEERLESS line of compressors.

PEERLESS units give you a COMPLETE line, ranging from one to ten tons.

PEERLESS Perfected Multiple Apartment System is recognized leader in its field. Full details given on request. Our record warrants your most exacting investigation.

PEERLESS ICE MACHINE CO.
515 W. 35th Street
CHICAGO, ILLINOIS



Sectional View of Owens Silencer

Here's the Answer to Nizer Compressor Noise

Easily attached and inexpensive OWENS VALVE SILENCERS remove the pounding in Nizer Compressors due to worn and misadjusted valves.

Hundreds of successful installations.

Prompt delivery. Write for literature.

KELRAY LABORATORY
3940 Gibson Street,
Detroit, Mich.



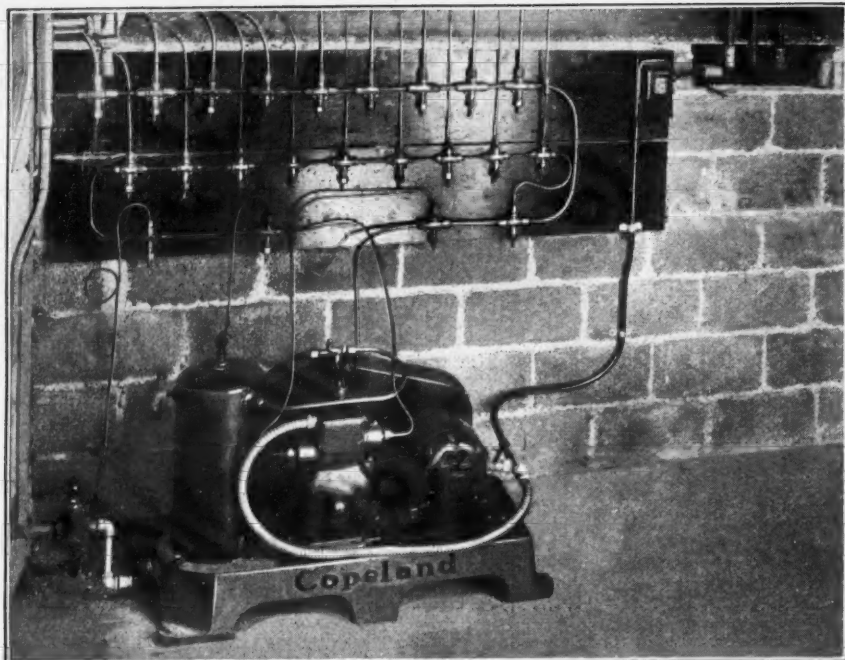
Progressive Distributors and Dealers are lowering their overhead and increasing sales because they display and sell SILVERICE.

Illustrated folder and price list sent upon request.

Silverice, Inc.
280 Broadway
NEW YORK

Copeland

DEPENDABLE ELECTRIC REFRIGERATION



Installation made by B. I. Cooper Sales Co., Syracuse, N. Y.; referred to below.

Here is the proof!

"Want you to know how well pleased we are with the Copeland Installation made last year in the REX ARMS APARTMENT HOUSE at James and Rigi Sts., Syracuse, N. Y.

"The thirty refrigerators hooked in multiple and operated by one Copeland Model 'W' are giving wonderful operating results and not a service call. The motor is the quietest we have ever used and after our experiences in the past with two other machines we are very proud of this Copeland Installation. The average cost per apartment is approximately twenty-five cents per month, with all thirty cabinets in use.

"The men who made this installation did the work in a neat and workmanlike manner and we shall certainly continue to use Copeland in our future installations."

This glowing testimonial to Copeland efficiency and dependability is typical of the enthusiasm expressed by owners of Copeland electric refrigerators for the home, Copeland multiple installations and Copeland commercial units in all types of business.

Successful electric refrigeration like this sells easily—and stays sold! Why don't you find out if Copeland needs more representation in your territory and if you are the man Copeland wants? Correspondence is held confidential.

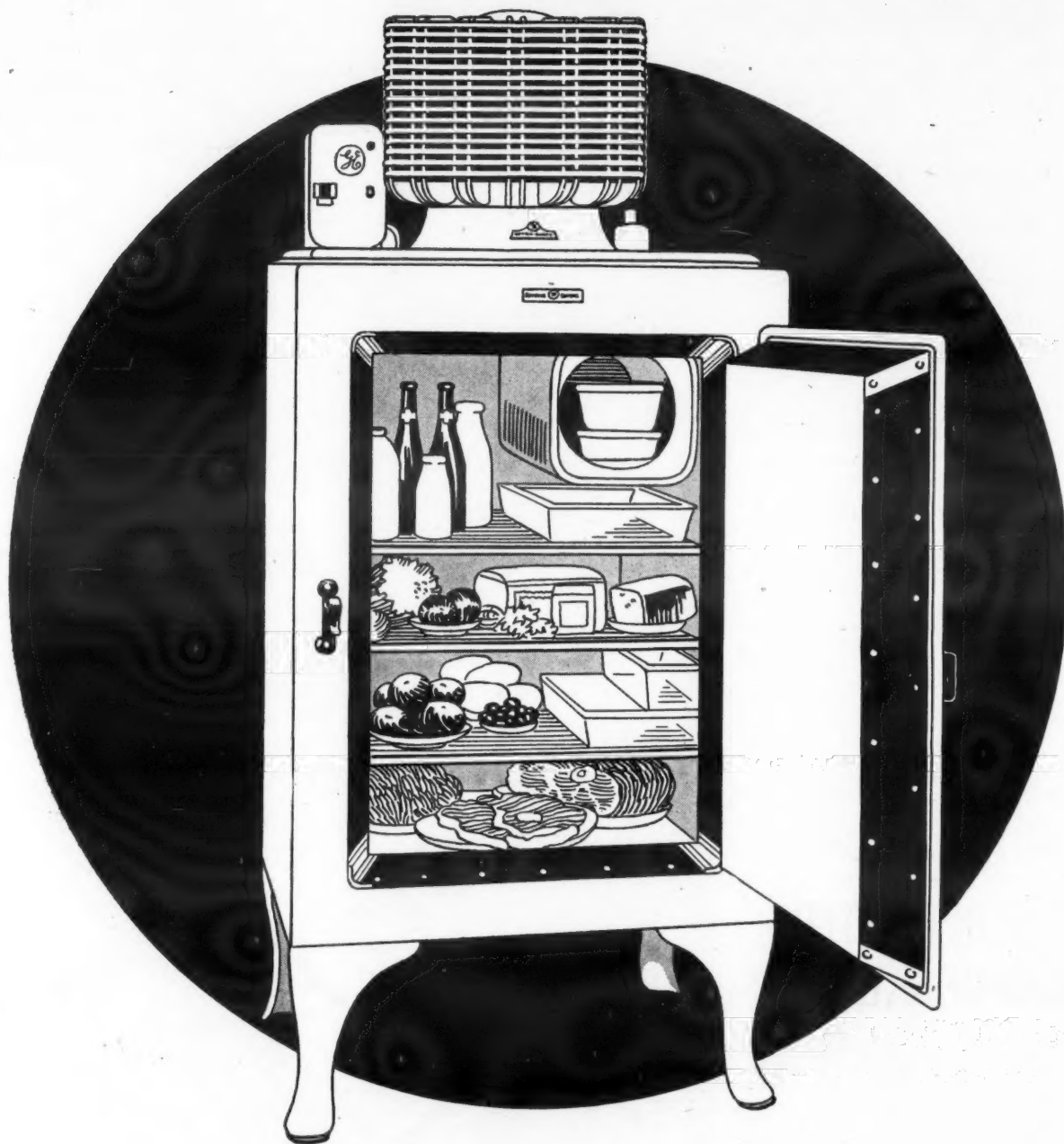
COPELAND SALES CO., 630 LYCASTE AVE., DETROIT

Copeland

DEPENDABLE ELECTRIC REFRIGERATION

250,000 USERS

*—and not one has spent a dollar
for service or repairs*



GENERAL Electric Refrigerators have now been on the market over two years. Today nearly two hundred and fifty thousand are in service in American homes and *no owner has spent a single dollar for repairs or service.* This is a record for the industry—probably a record for any industry.

This statement is not to be taken as implying that there has not been a single case of trouble of any sort in this quarter of a million machines. It means the General Electric Company, and its distributors, have carried out the two year guarantee to the letter. Every service call received—justified or not justified—has been answered promptly. The trouble, if any, has been cor-

rected and no charge has been made to the user.

The cost to us and our distributors, involved in fulfilling our guarantee, has been very small, so small as to reflect the very highest credit to the Engineers and Scientists of the General Electric Research Laboratories who worked 15 years to perfect this refrigerator *before* it was placed on the market. Judged by usual accomplishment, our service costs have been negligible.

With such a performance record, is it to be wondered at that the current demand for General Electric Refrigerators is smashing all records? During the week in which this copy is written over 1,000 carloads were shipped from the factory on customers orders.

GENERAL  ELECTRIC
ALL-STEEL REFRIGERATOR

REFRIGERATION DEPARTMENT, GENERAL ELECTRIC COMPANY, HANNA BUILDING, CLEVELAND, OHIO

NEW YORK A.S.R.E. HOLDS INTERESTING SESSION FOR LADIES

Style Show Presented By Rayon
Institute of America

OVER 250 members of the New York section of the American Society of Refrigerating Engineers and their wives attended the annual ladies' night celebration which was held at the Hotel Astor in New York City on April 17. Entertainment during the dinner consisted of a special musical program under the direction of William S. Larkin.

A short business meeting at which Ira E. McFarland, district sales manager for the Jamison Cold Storage Door Co., was elected treasurer of the section was held immediately after the dinner. Following this, the Rayon Institute of America presented a fashion show, modeling the latest style New York and Paris gowns, made of rayon. This was under the personal direction of Miss Jane Ellis, fashion counsel of the Rayon Institute. The institute also gave each woman present, a gift consisting of a package of rayon thread. Preceding the show, Miss Ellis gave a short talk on rayon.

Following the fashion show, L. L. Lewis of the Carrier Engineering Corp., introduced H. O. Davidson of the Viscose Co., Marcus Hook, Pa., which is one of the largest manufacturers of rayon, as the speaker of the evening. Mr. Davidson presented an extremely interesting paper on the manufacture of this product. He gave a very clear picture of the part played by refrigeration and the refrigerating engineer in its production.

To illustrate his theme, he displayed a motion picture entitled "The Romance of Rayon." This picture showed the various processes to which spruce fibers and cotton linters are subjected before being changed into rayon. He also showed how temperatures and humidities are controlled at every point.

A short period of informal dancing concluded the evening's entertainment. The affair was planned by a committee of the officers working under the chairmanship of president L. A. Ramsey. These officers were: A. Crawford Craig, and L. L. Lewis, vice presidents; Ira E. McFarland, treasurer, and James Larkin, secretary.

AMERICAN INSTITUTE DISCUSSES COOLING OF FOOD PRODUCTS

Ice Cream, Pears, Berries and
Fish Refrigeration Methods
Presented

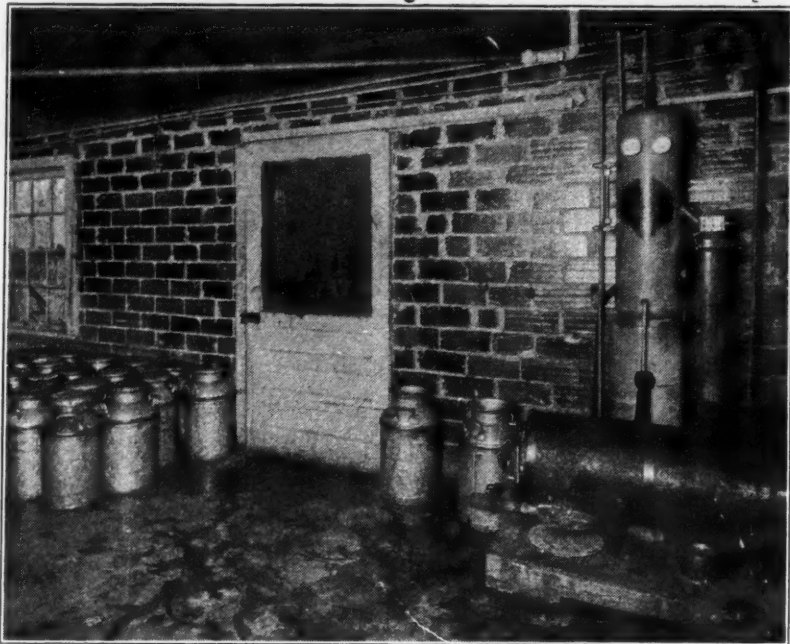
The eighteenth annual meeting of the American Institute of Refrigeration was held May 2 and 3 in the Washington Hotel, Washington, D. C.

Hon. Arthur M. Hyde, Secretary of Agriculture, gave the opening talk at the luncheon which opened the meetings. At the afternoon session, following routine business, George E. Wallis, eastern director of sales, of the Creamery Package Co., spoke on "The Application of Refrigeration to Ice Cream Plants." "Fire Resistance Tests of Building Materials and Construction" was discussed by S. H. Ingberg, chief of fire resistance section, Bureau of Standards, Dept. of Commerce.

"Recent Developments in Fish Distribution" was talked on by Lewis Radcliffe, Deputy Commissioner of Fisheries, Bureau of Fisheries, Dept. of Commerce. W. T. Pentzer, assistant physiologist, Bureau of Plant Industry, Dept. of Agriculture, spoke on "Cold Storage of Fall and Winter Pears." "Water Cooling for Industrial Purposes in all Its Phases," was discussed by B. Franklin Hart, Jr., of B. Franklin Hart & Co., New York. Dr. Lon A. Hawkins, and H. C. Diehl, of the Bureau of Plant Industry, Dept. of Agriculture, talked on "The Frozen Pack Method of Storing Berries."

"Silica Gel Iceless Refrigerator Car," was discussed by Horace M. Wigney, manager, Safety Refrigeration Inc., New York. A. G. Galloway, principal scientific aid, Bureau of Plant Industry, Dept. of Agriculture, talked on "A Portable Pre-Cooling Plant."

Schurtz System Operates on Natural Gas in Kansas Dairy



The Brookside Dairy at Bethel, Kans., is equipped with a 1-ton Schurtz refrigeration system. The plant is operated from their own natural gas well. It has been in use about twenty months. The milk is cooled to 36 degrees and 300 pounds of ice are made daily.

PHILADELPHIA UTILITY IN MIDST OF \$450,000 REFRIGERATOR DRIVE

An intensive two months refrigerator campaign for the Philadelphia Suburban-Counties Gas and Electric Co. was launched at a dinner at the Valley Forge Hotel, Norristown, April 1. The campaign which is a part of the Philadelphia Electric Co.'s plan to sell \$450,000 worth of electric refrigerators in metropolitan Philadelphia, received a flying start at the dinner. It was attended by two hundred members of the sales department.

H. H. Ganser, vice-president; M. C. Huse, sales manager; W. J. Geiger and J. E. Brown, sales department officials, addressed the group.

Individual and district prizes will be offered as inducements to put over this selling campaign. Every employee of the 7,000 employed by the two combined electric companies will be requested to take an active part in the distribution of the refrigeration machines, which includes four separate makes or 97 per cent of those sold in the local market.

William H. Taylor, president, will offer a prize to be given to the district manager whose district has the largest percentage quota in the campaign.

A. E. FEIN ELECTED HEAD OF SPARKLETS

A. Edwin Fein, for seven years vice-president and general manager of Sparklets, Inc., New York, N. Y., was elected president of that company at a recent meeting of the board of directors. F. H. Glazebrook, formerly president and secretary, was named vice-president. J. W. Reid, who has been office manager for Sparklets, Inc., was elected secretary.

P. B. ZIMMERMAN TO SPEAK AT CHICAGO I. A. A. CONVENTION

The Chicago convention of the International Advertising Association will be held at the Palmer House in Chicago, Ill., on May 14-16. P. B. Zimmerman, general sales manager of the electric refrigeration department of the General Electric Co., Cleveland, will speak on "Merchandising on Known Elements" at the morning session on May 16.

Dr. Julius Klein, director, bureau of foreign and domestic commerce at Washington, D. C., will speak on "What Industry Expects of Advertising" at the evening session on May 14.

All the aluminum in the world is produced in electric furnaces.—*Southern Public Utilities Magazine.*

SERVEL SALES, INC., GETS ORDER FOR 500 UNITS FROM AUTODRINK CORP.

The Autodrink Corp., New York, N. Y., has awarded a contract to Servel Sales, Inc., Evansville Ind., for five hundred Servel electric refrigeration units. The machines, which will be used to refrigerate self-serving drink dispensing devices, will be installed throughout the country in chain stores, concessionaires, railroad and bus terminals, theaters and other public places. The dispensers are placed under lease license. For a nickel or dime the machines provide a thirsty individual with a chilled soft drink in a fresh paper cup.

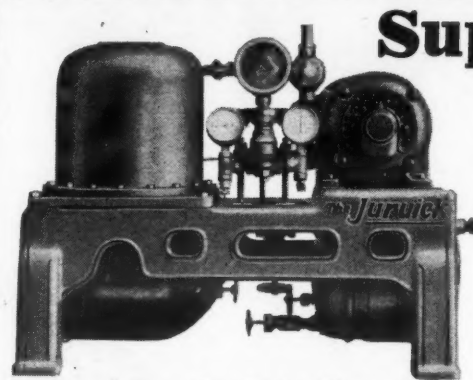
The Orange Crush Co., largest distributors of orange juice in the world, have closed a contract with the Autodrink

Corp. for exclusive use of dispensers for orange drinks for the next five years. Negotiations are now being carried on with manufacturers of other syrup flavors by Autodrink for similar long term contracts.

The Autodrink Corp. is a merger of other manufacturers of similar types of equipment. It is partly owned by the Consolidated Automatic Merchandising Corp., which was formed by a recent \$25,000,000 merger of vending machine companies under the auspices of United Cigar Stores and F. J. Lisman & Co.

K. M. SCHAEFER REPORTS NORGE BUSINESS GOOD IN THE EAST

K. M. Schaefer, general sales manager, Norge Corp., spent a week, the latter part of April, visiting distributing organizations in the East. He reports business conditions good and distributors optimistic.

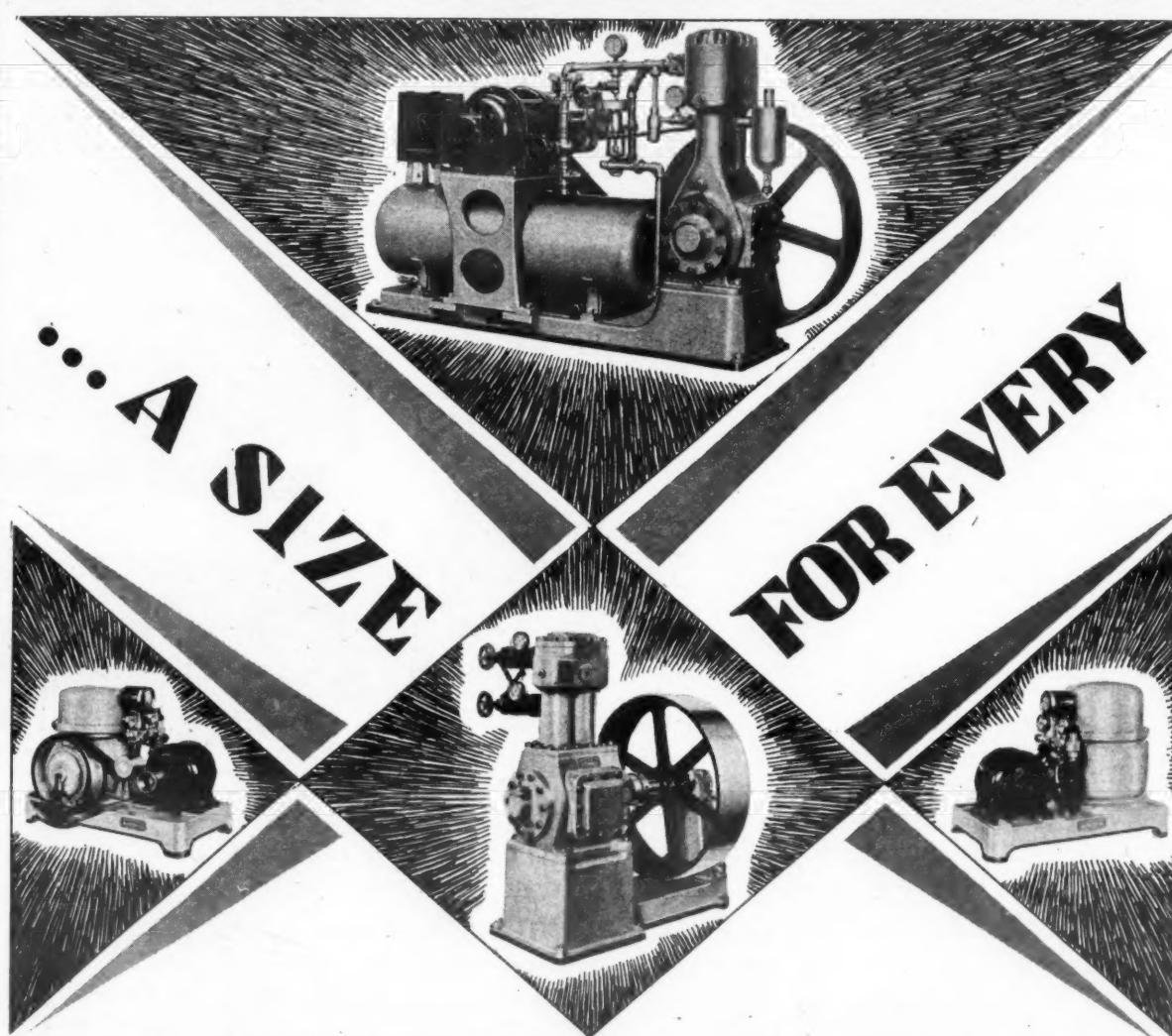


Superior The JURUICK LINE

In every feature... with quality built into every detail... silent, smooth performance... automatic control... simple design... easy to operate... economical... easy for the dealer to sell.

A few good territories still open for responsible representatives qualified to install and service these machines.

The complete Juruick line includes machines up to 30 tons capacity
AMERICAN ENGINEERING COMPANY
2420 Aramingo Ave., Philadelphia, Pa.



COMMERCIAL PURPOSE

Really, this question of "which mechanical refrigerating machine" is one that has proved puzzling to many dealers and potential dealers. But is the answer really so difficult? What do you look for in considering a dealer franchise?

Quality of the machine? Lipman invites a comparative part for part inspection with any refrigerating machine! Economy and efficiency of operation? Competitive test runs, without a single exception, have proven the superior operating economies of this precision-made machine! Maker's reputation and experience? This company is the pioneer in the manufacture of self-contained, full

automatic refrigerating machines for commercial purposes! Manufacturer's cooperation with dealers? Unusually close and distinctly unusual! Advertising? Lipman advertising is blanketing the trade from coast to coast!

The Lipman line is complete. Servicing expenses are unusually small—profit on sale of machine is thus largely retained. Dealers or individuals of reliable financial standing and experience are invited to investigate the Lipman franchise. Write today—absolutely no obligation. Address: General Refrigeration Company, Beloit, Wisconsin.

Lipman
ELECTRIC REFRIGERATION

TRADE
EXTRA DRY ESOTOO

MARK

SULPHUR DIOXIDE

Analysis Guaranteed

We have an agent, with our product in stock, near you
Wire us where we can serve you

VIRGINIA SMELTING CO., WEST NORFOLK, VA.
F. A. Rustia, Secretary 131 State St., BOSTON 2 Rector St., NEW YORK



A few of the 154 fine modern apartment houses in Metropolitan New York that have chosen Electrolux, the Gas Refrigerator, within the past seven months. Read what prominent architects and builders have to say about the absolute silence, dependability, and low operating cost of the Electrolux Refrigerator.

Metropolitan NEW YORK

"Goes ELECTROLUX"

WITHIN 7 MONTHS

In world's most competitive market, 154 new apartment buildings choose the Gas Refrigerator . . . 11,542 units

FIRST offered for sale at the end of 1926—today in tens of thousands of homes the country over. That, briefly, outlines the tremendous success of Electrolux, the Gas Refrigerator.

A success not confined to any one section of the country, to any one city or group of cities. Even in the Metropolitan New York district—long noted for its keen competition, and always looked upon as the world's hardest place in which to introduce a new product—the record of Electrolux has been phenomenal. In this one territory, in just one field alone—that of better-class new apartment houses—Electrolux within seven short months has been chosen as standard equipment in 154 new buildings—requiring a total of 11,542 refrigerators.

A sensational success, but not surprising to those who have followed the development of the Gas Refrigerator. Not a single moving part. No motor. No machinery. Nothing but a tiny gas flame to vaporize a refrigerating liquid and a mere

trickle of water to condense it back again. The result—intense, even cold, plenty of pure sparkling ice cubes, but never a whisper of sound, never any trouble, and all this at the lowest cost in history.

For six years it was tested, improved and refined; tried out under practical operating conditions. It was investigated thoroughly by scientists, engineers, refrigerating men. It was tested for months by nationally known authorities such as Good Housekeeping Institute,

Delineator, New York Herald Tribune, National Board of Fire Underwriters—and approved by all.

Architects and builders, too, men who buy only on the basis of cold facts, examined Electrolux carefully . . . and became enthusiastic.

Mr. Victor C. Farrar, of Farrar & Watmough, for instance, an architect of over twenty years' standing who has designed some of New York's noted buildings, has this to say:

"Electrolux, a comparative newcomer in the field, is the most interesting and remarkable development of all. The substitution of a silent little gas flame for all other operating mechanism is a great achievement. From the building owner's standpoint, it means greater length of life and freedom from service. From the woman's standpoint it means simplified, dependable, trouble-free operation, at a lower cost than ever before."

Or among the builders, take the opinion of Mr. J. Irving Walsh. His firm, J. Irving Walsh, Inc., develops better-class apartment properties in the fashionable Washington Square and lower Fifth Avenue section of New York. He says:

"Every successful builder in the apartment house field tries to use

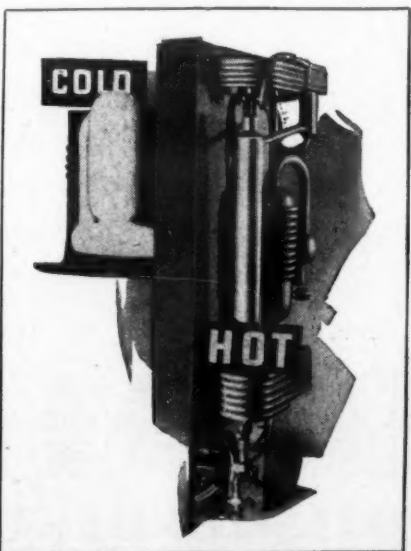


QUICK FACTS

No sound
No moving parts
No oiling—No trouble
Costs less to operate
Lasts indefinitely
No wear



Constant noiseless cold, pure sparkling ice cubes at all times



Picture at right shows the "whole works" of Electrolux—a series of steel tubes hermetically welded into one solid continuous unit. No machinery, not a single moving part to vibrate, to make noise, to cause trouble.



Right—Mr. Victor C. Farrar, of Farrar & Watmough, architects for the well known Henry Mandel Companies, whose opinion of Electrolux appears on this page.



Left—Mr. J. Irving Walsh, prominent builder, formerly President of the New York Real Estate Board, and a director of the New York Real Estate Exchange, Inc. Read his statement.

equipment that will best provide for the comfort and happiness of tenants, and at the same time keep down future maintenance costs. Electrolux, the Gas Refrigerator, meets this qualification. I have had a long experience with automatic refrigeration, but I like Electrolux and use it because I find it is absolutely noiseless, and in the kitchen you can not only depend upon it to operate perfectly, but at far lower cost than

any other refrigerating system."

That is the story of Electrolux. Only one thing remains. If you are interested in the substantial profit opportunity which Electrolux offers able merchandisers, wire or write at once for complete details as to models, prices and territories. In some sections it is still possible for dealers to obtain a franchise if able to meet our qualifications. Address Servel Sales, Inc., Evansville, Indiana.

FOOD PLACEMENT IS STRESSED AT HUDSON REFRIGERATION SHOW

G. E., Frigidaire, Electrolux, Kelvinator and Copeland Displayed

CORRECT placement of food in the refrigerator for the best results in food preservation was stressed probably more than anything else at the Electric Refrigeration Show held by the J. L. Hudson Co., Detroit department store, April 22 to 27.

Several models of each of five makes of refrigerators were displayed effectively around the walls of the auditorium of the store and lectures and demonstrations were given from the platform. General Electric, Kelvinator, Frigidaire, Copeland, and Electrolux were displayed.

In the back of the auditorium were tables displaying such refrigerator accessories, as dishes for storing food, rubber ice cube trays, glass molds for molding and serving salads and desserts, and dishes especially applicable to serving food prepared in the electric refrigerator.

Many recipes for desserts and salads made in the electric refrigerator were explained and demonstrated. A booklet "Your Electric Refrigerator and Knox Gelatine" was available to visitors. Miss Eleanor Sense, home economics expert with the Charles B. Knox Gelatine Co., gave talks and demonstrations on "Warm Weather Desserts," "Spring Health Salads," "Holiday and Everyday Frozen Salads and Desserts," "Summer Desserts Especially for Children," and "Varying Special Diet Dishes."

Testing of refrigerators at Good Housekeeping Institute was discussed by Miss Helen Whitson of the Institute. Miss Whitson explained some summer desserts and menus. She pointed out that the refrigerator can save much work in the summer. Suggested foods which add to the summer meal and which add nothing to the work of preparation when the refrigerator is used were cocktails, jellied soups, salads, and breads with ingredients ready to mix in the refrigerator. She pointed out that one of the important things in selecting a refrigerator was to get one large enough that it can save work by holding foods over. Miss Whitson explained the proper placing of foods in various models on display.

The economy of using an electric refrigerator was discussed by Miss M. E. Kirk of the Kelvinator Corp.

Better refrigeration was listed as the first advantage of the electric refrigerator by Miss Osee Hughes, associate professor of Home Economics, Michigan State College. The health of the family is dependent on healthy food, said Miss Hughes, and the constant temperature daily and over Sunday and drier cold of the electric refrigerator were pointed out as the best means of serving healthy food. She classed the refrigerator as an investment since it comes in the class which saves energy, health, material and time.

Ease and convenience were placed high in the advantages by Miss Hughes. Other advantages were having something in the house after a few days away from home, easy cleaning, fewer marketing trips, desserts suitable for children can be easily made; and foods suitable for invalids are easily prepared.

Miss Hughes, in speaking of the care of food in the refrigerator, said microorganisms required food, favorable temperature, and moisture, and that dry cold was the safeguard in food preservation. Moist cooked foods spoil much more quickly than dry cooked foods. Placing food for best preservation was explained.

Placing food in the refrigerator was demonstrated by Miss Verna L. Miller, home economics expert, Frigidaire Corp. Baskets containing the food which might be bought on Saturday by the average family were placed on the platform and the food was prepared and placed in the refrigerator.

Whipping of Carnation milk for use in frozen desserts and salads was explained by Miss Helen Wilkinson of the Carnation Milk Products Co.

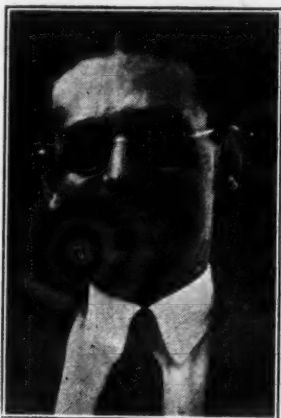
SPOKANE COPELAND MEN HEAR McELHINNY AT SALES MEETING

Harper-Magee, Inc., Spokane, Wash., Copeland distributors, held a sales convention at the Desert Hotel in Spokane on April 20-21. C. W. Dawson, vice president of the Harper-Magee company, was in charge of the convention. W. D. McElhinny, vice president in charge of sales for the Copeland Products, Inc., Detroit, was the principal speaker at the meeting.

W. E. HARBER JOINS SALES DEPT. OF RHINELANDER CO.

W. E. Harber, formerly with the national merchandising division of Servel Sales, Inc., and recently special sales representative for the Belding-Hall Co., has joined the sales organization of the Rhineland Refrigerator Co., Rhineland, Wis.

Head Sparklets Sales and Home Economics in Southeast



J. W. Goodwin



Mrs. Green

Sparklets, Inc., New York, N. Y., recently appointed J. W. Goodwin as sales manager of its southeastern division, and Mrs. Willie Belle Green as director of its home economics department in its southeastern division, which has established temporary offices at 411 Norris Bldg., Atlanta, Ga.

Mr. Goodwin was formerly associated with the Edison Electric Appliance Co., Chicago, Ill., and the Benjamin Electric Manufacturing Co., also of Chicago. With the latter concern he acted as special representative and was in charge of the sales of the Crystel refrigerator cabinets and electric ranges in the South.

Mrs. Greene was formerly head of the home economics department of the southern district for the Edison Electric Appliance Co., Chicago. While she was with this concern she was responsible for the "southern dishes" compiled in the Hotpoint cook book. At present Mrs.

Greene is preparing a cook book featuring "southern dishes" cooked electrically. After nine years of success in conducting cooking schools in the south Mrs. Greene resigned to take a similar position with the Benjamin Electric Manufacturing Co.

NORGE ST. LOUIS DISTRIBUTOR AVERAGES \$471.00 PER SALE

The average sale of the Norge St. Louis distributor, E. E. McMullen, in the last several weeks has been approximately \$471.00, indicating that larger models have been sold, according to a report. The distributor attributes the sale of larger models to the fact that many prospects are in the market for larger models but are approached merely for smaller ones.

GENERAL ELECTRIC CO. REPORTS 16% GAIN IN FIRST QUARTER SALES

General Electric Co. sales billed for the first three months of 1929, announced by Gerard Swope, president, amounted to \$83,385,015.49, compared with \$71,640,790.40 for the corresponding period last year, an increase of 16 per cent. Profit available for dividends on common stock for the first quarter of 1929 was \$13,862,298.06, compared with \$11,261,842.71 for the corresponding three months last year.

The profit available for common stock for the quarter is equivalent to \$1.92 per share in 1929 and \$1.56 per share in 1928. Orders received during the first quarter of 1929 amounted to \$101,365,208, compared with \$79,925,840 for the corresponding quarter last year, an increase of 27 per cent.

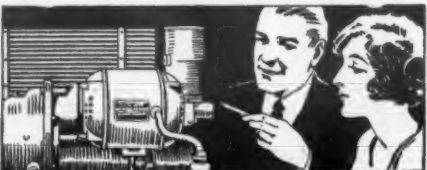
George A. Terhune Joins Tagliabue Co. As Advertising Manager

George A. Terhune has been recently appointed advertising manager of the C. J. Tagliabue Co., Brooklyn, N. Y. For several years Mr. Terhune was connected with the advertising department of the Chicago Pneumatic Tool Co., Detroit.

M. Theodore Simmons Opens Office in New York

M. Theodore Simmons, formerly patent attorney with H. R. Van Deventer, Inc., New York, N. Y., has opened offices in the New York Central Bldg., New York City, in association with Clyde A. Norton, for practice in patent matters.

NOW . . . TRAINING IN ELECTRIC REFRIGERATION



Great news! A simplified, practical course in Electric Refrigeration has been prepared by foremost authorities. Approved and sponsored by leading manufacturers. Fascinating—easy to grasp. Unlike ordinary schooling—no textbooks, no study crudery. Write ten so you can learn every important principle quickly. Chock full of charts, drawings, photographs—practical throughout. Prepares you for big pay jobs at \$50 to \$150 a week!

Mail the coupon at once for illustrated book just off the press! Gives full details of great opportunities that await you in this growing industry. No obligation. Utilities Engineering Institute, Dept. 54, 4403 Sheridan Road, Chicago, Illinois.

NEW BOOK FREE

Utilities Engineering Institute, Dept. 54, 4403 Sheridan Rd., Chicago, Ill.
Send me your free book on Electric Refrigeration and full details about your easy home training and liberal terms. This does not obligate me.
Name _____
Address _____
City _____ State _____

CABINET QUALITY—In Sight, and Inside!

DO NOT make the mistake of believing that because so much prominence is given its remarkable mechanical features (absence of all pistons, valves and internal parts, stuffing boxes, belts, etc.) the quality of Savage Cabinets has been subordinated.

Consider these features—

HEAVY INSULATION
Savage Cabinets are sealed against all moisture. Every Savage Cabinet has 3 1/2" to 4" corkboard insulation.

The lids are all fitted with heavy insulating rubber rings which prevent warpage and leakage. Savage tops contain more actual insulation than those of any other cabinet... which means much less sweating in humid weather.

BEAUTY OF FINISH
All Savage Cabinets are built of Full Finish Furniture Stock—the sides have two coats of enamel, baked on over a heavy protective ground coat.

All Savage Cabinet tops are bright finish Monel Metal.

GREATER CAPACITY

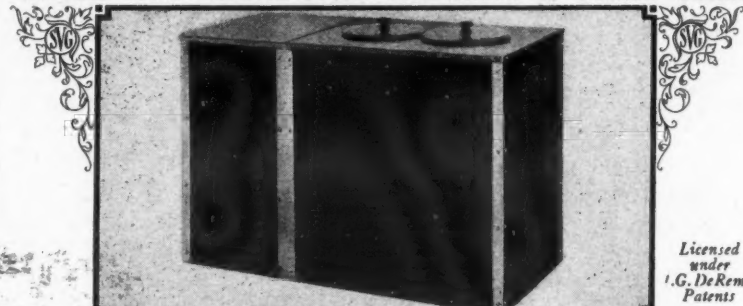
The use of the exclusive Savage flat-plate thin jelly-freezing tanks, in place of brine tanks, gives added interior space which gives 40% to 50% more package-goods capacity than conventional sleeve type cabinets.

Get the attractive new literature describing the Savage Line of Mercury Cabinets—just off the press.

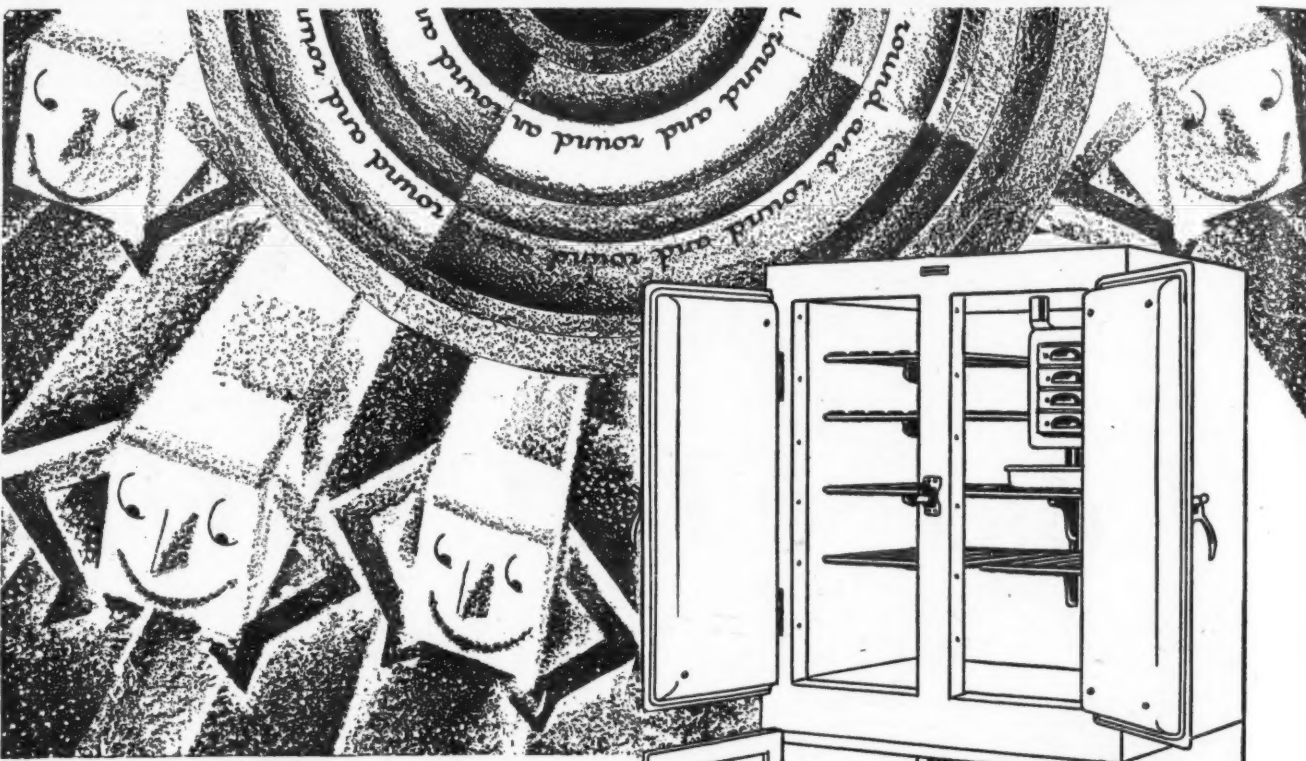
Distributed by

SAVAGE PRODUCTS DISTRIBUTING CORPORATION, UTICA, N. Y.

COMPARE YOUR SERVICE COSTS WITH THOSE OF SAVAGE USERS



ONE OF THE PRODUCTS OF SAVAGE ARMS CORPORATION UTICA NEW YORK



GOING GREAT GUNS!

IN TALKING about the success of the New Holmes Electric Refrigerator, it is mighty hard not to bubble over with enthusiasm.

The whole thing is contagious. A regular torrent of enthusiasm comes in from every section of the field. The machines are great—distributors are crazy about them. Dealers' orders are piling in by the hundreds. We have more carload orders on our books than we ever dreamed were possible.

The Holmes Electric Refrigerator is one product in a thousand. It has caught on immediately. It offers distributors and dealers a chance to share in an unusual success. With an arresting national advertising campaign, constantly increasing in scope, a complete program of dealer helps of every variety, a liberal margin of profit—the Holmes Electric Refrigerator is the sensation of the country's fastest-growing industry. Holmes Products, Inc., General Offices, 205 East 42nd Street, New York City.

HOLMES
ELECTRIC REFRIGERATOR

Food Merchants

Choose McCray Equipment

For Bigger Profits



The McCray No. 185 Cooler. This model is especially well suited for the merchant who needs ample storage facilities.



The McCray No. 105 Display Case. Gleaming white porcelain exterior with monel metal trim makes this case the finest in display equipment.



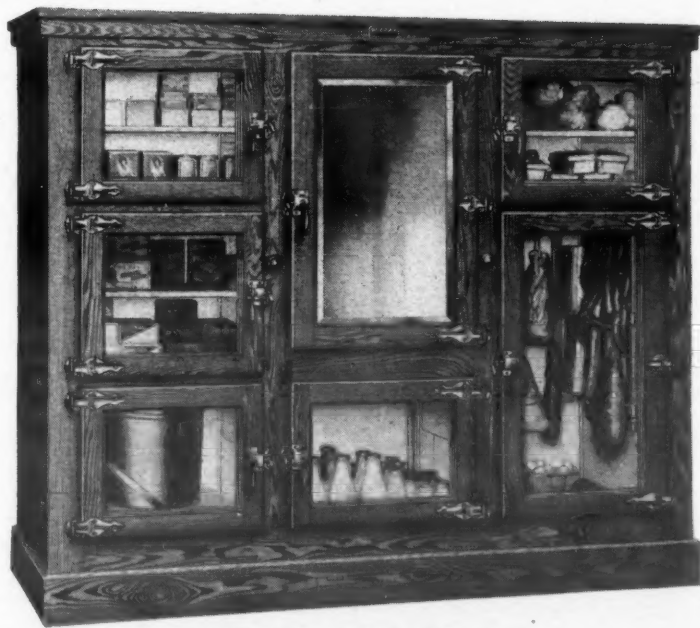
The McCray No. 512 Display Case. Oak exterior with white enamel interior, electrically lighted. Clear, unobstructed display enhanced by end mirrors inside.

KNOWING that the name McCray means more satisfied customers and lower operating costs, food merchants choose McCray equipment for bigger profits.

For with McCray refrigerators, coolers, refrigerator counters and chests, spoilage losses are eliminated, foods are kept fresh and tempting to the customer.

Meeting every need of the food merchant for display, storage, quick, convenient service, the whole McCray line is adapted for electric or mechanical refrigeration. *In every McCray model, mechanical refrigeration of any type may be installed at once.* No changes or alterations necessary.

And the staunch construction of McCray



The McCray No. 411 Refrigerator. Most popular type of grocer refrigerator. Compartments enable quick, convenient service.

equipment, proved in 40 years of service, insures efficient operation with any type machine.

Shown above are four McCray units especially suited to the needs of food merchants. Pure corkboard insulation, sealed with hydrolene cement, is used in all McCray models. McCray quality is built into every hidden detail.

Remember, that it is the refrigerator itself which determines the operating cost and efficiency of any machine. In the McCray line, dealers in mechanical refrigeration can offer a time-tested product.

Write for information regarding the McCray line. No obligation to you, of course.

McCray Refrigerator Sales Corporation, Dept. 66, Kendallville, Indiana
Salesrooms in All Principal Cities (See Telephone Directory)

WORLD'S LARGEST MANUFACTURER OF REFRIGERATORS FOR ALL PURPOSES

McCRAY REFRIGERATORS

Husbands Accompany Wives to Demonstrations at Philadelphia Electric Club Refrigeration Show



Ten companies displayed models at the Refrigeration Show in Philadelphia sponsored by the Electric Club of that city, April 22 to April 27. Each day two models were placed on the platform and lectures and demonstrations centered around those models.

REPRINT OF PATENT TRIAL PROCEEDINGS GIVES FINAL DECREE

Official Decision in Frigidaire-Absopure Case Published in Special Supplement

THE revised and official decision of Judge Arthur J. Tuttle in the patent suit of the Frigidaire Corporation, plaintiff, versus General Necessities Corporation, defendant, in the District Court of the United States for the Eastern district of Michigan, Southern Division, in equity No. 1,611, appears in the special supplement being published by ELECTRIC REFRIGERATION NEWS as announced in previous issues. The trial, which lasted six days, was held in Bay City, Michigan, March 18 to 23, 1929. The proceedings were reported in full in the March 27 and April 10 issues of the News.

In accordance with his usual custom Judge Tuttle rendered a verbal opinion immediate following the close of the trial, reserving the right to correct the details of his decision after further deliberations. The final opinion of the court, which will form a part of the official record, has been handed down by Judge Tuttle and will be added to the material reprinted from the two issues of the News.

Nearly three years elapsed between the filing of the original complaint by the Delco Light Company of Dayton, predecessor of the Frigidaire Corporation, against the General Necessities Corporation of Detroit, now the Absopure Refrigeration Corporation, and the trial. A total of seven patents were involved in the original complaint but four of these were withdrawn by the plaintiff some time previous to the trial. Those remaining were the patent to H. B. Joy, No. 1502914, dated July 29, 1924, claims 8 and 9, inclusive; the patent to G. A. Kramer, No. 1280765, dated October 8, 1928, claims 3 to 8, inclusive; and patent

to Fred W. Wolf, No. 1337175, dated April 13, 1920, claims 10, 15, 16, 18.

The Joy and Kramer patents were also withdrawn by the plaintiff leaving only the Wolf patent in suit. Over 1,000 pages of testimony were taken at the trial and the record has proved to be one of the most interesting and enlightening pieces of literature on the subject of refrigeration ever compiled.

Attorneys for the plaintiff were Messrs. Drury W. Cooper of Cooper, Kerr and Durham, New York; Thomas J. Byrne and Harry W. Lindsey, Jr., of Rector, Hibben, Davis and Macauley, Chicago. George Rex Frye of Swan & Frye, Detroit, was attorney for the defendant.

Since basic features of the electric refrigerator, as now made by numerous manufacturers, were involved in the suit, it was watched with great interest by engineers, patent attorneys and financial men of the industry. The situation as affecting the electric refrigeration industry has been considered by many as comparable with that in the automobile industry at the time of the litigation over the famous Selden Patent.

Only a few days elapsed after the close of the trial until ELECTRIC REFRIGERATION NEWS reported Judge Tuttle's verbal opinion handed down from the bench and gave a verbatim record of the entire proceedings during the first day of the trial. This was followed, in the next issue, with a complete record of the proceedings during the remaining days of the trial together with a full reprint of the principal patent in suit and additional data on other patents involved.

As a further service to the industry, and especially for the benefit of the younger men in the field desiring to obtain a clearer understanding of the historical background and the scientific development of electric refrigeration, the News is publishing a special supplement reprinting all matter pertaining to the trial, which appeared in the issues of March 27 and April 10. Copies of this supplement are offered in any quantity at \$1.00 each.

Spokane Apt. Gets 65 Frigidaires

Sixty-five Frigidaires will be installed in the Roosevelt apartments now under construction in Spokane, Wash.

R. P. Mills, Atlantic Utilities Co.; W. H. Keefe, Jr., Allen Bros., Inc., Bridgeport, Conn.; J. H. Carter, Servel Sales, Inc.; R. H. Staines, Atlantic Utilities Co.; Frank Guice, Atlantic Utilities Co.; E. W. Gellatly, Atlantic Utilities Co.; Carl Reitz, Servel Sales, Inc.

Visit Norge Factory

The April issue of the "Norge Rotor" reports that L. B. DuBois, distributor at Rochester, N. Y., R. J. Lutticken, of the P. A. Bergner Co., Peoria, Ill., and Mr. Nelson, of the Banister & Pollard Co., Newark, N. J., were recent visitors at the Norge factory in Detroit.

MORE COOL WATER PER DOLLAR

Cooling Drinking Water

... A New Field of Profit!

Next to the preservation of food, the most profitable outlet for refrigerator units is for cooling drinking water!

Industrial plants everywhere are volume prospects! You can sell many electric water coolers at less cost and in less time!

Real Profits For You

The new Halsey Taylor DIRECT-FLO Electric Coolers give you a superior cooler with exclusive features that will easily clinch sales! No others have these desirable advantages.

Uniformity of Temperature

Instantaneous Cooling

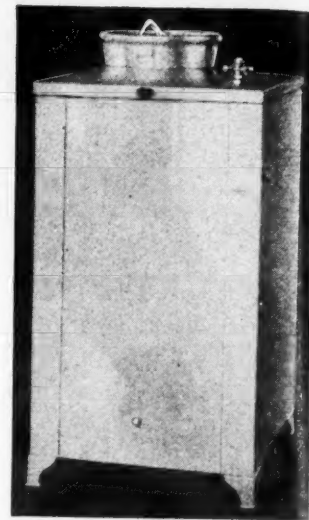
Storage for Peak Loads

Special Duo-Coil which guards against damage by freezing

Practical sanitary Halsey Taylor

2-stream Projector

More Cool Water per Dollar



THE HALSEY W. TAYLOR CO., Warren, O.

Largest Manufacturers of Drinking Fountains Exclusively

Write for full details. Note—although requiring minimum attention, the lack of proper servicing facilities as yet in some sections makes it necessary to confine the distribution of these coolers to Penna., Illinois, Michigan, Indiana, Ohio, New York and New Jersey only.

HALSEY TAYLOR Electric COOLERS

DIRECT-FLO—INSTANTANEOUS COOLING

What Is Your Franchise Worth?...

... is it an Asset?

... is it Worth Money?

NOT long ago the Dodge dealer in a large Eastern City decided to retire from business and take life easy. He is reputed to have made more than a million dollars out of his retail automobile business. He had a large number of applicants for his franchise and when he finally did sell, he received full value for all cars, parts, used cars, machinery, fixtures, etc., and for his franchise he received \$50,000.

The probabilities are that you, too, know of similar cases. No doubt you are personally acquainted with men who had an opportunity to acquire the sales franchise for Buick, Hudson, Dodge, Packard, Cadillac, or some other well-known automobile in the early days of that industry. You are then perfectly familiar with the opportunities that were literally thrust upon these men, and the fortunes these dealers made for themselves.

Some Franchises Are Worth More Than Others

The opportunities today for dealers in the oil burner business are even greater than they were two decades ago for dealers in the automobile industry. The oil burner industry is much further advanced after its first ten years of existence than were automobiles in the same period of time. But just as some automobile dealers realized that some franchises were worth more than others, so are some oil burner dealers discovering that certain oil burner franchises are more valuable than others. The reason for this is very simple—a few manufacturers are doing more to build a sound and stable dealer organization than are others. They are working closely with their dealers along merchandising lines and helping build a profitable business for each and every one handling their particular product.

All of which has a very direct influence on the value of a particular selling franchise. Space does not permit, nor is this the place to go into the details of what THIS COMPANY is doing to establish a greater dollars and cents value to the franchises that have been granted to its hundreds of dealers. Suffice it to say that a definite money value has been established in the possession of a QUIET MAY franchise.

What Is Your Franchise Worth?

RIGHT NOW—how much is your franchise worth? What is being done by the manufacturer whose product you represent to see that you get a chance to participate in the fortunes that will be made in this industry.

The May Oil Burner Corporation has worked out a Profit Sharing Plan, whereby its dealers can get a direct share in the factory earnings. This is in addition to the substantial profits that are already being made by many QUIET MAY dealers out of their retail business.

This is just one of the many advantages of having a QUIET MAY Franchise. Why not get the complete story. Regardless of your present connections, get the details of the QUIET MAY Franchise.

MAY OIL BURNER CORPORATION

BALTIMORE, MARYLAND

OFFICES:

NEW YORK
331 Madison Avenue

CHICAGO
35 East Wacker Drive

BOSTON
89 Federal Street

New England Servel Commercial Men Attend Meeting at Bridgeport, Conn.



Atlantic Utilities Co. Meeting, April 3.

Servel commercial equipment was discussed at a meeting of Connecticut, Rhode Island and western Massachusetts men at Bridgeport, Conn., on April 3. The above photograph was taken during the one day conference which was sponsored by the Atlantic Utilities Co., tri-state distributors of Servel and Electrolux refrigerators. Talks were given by J. H. Carter and Carl Reitz, of Servel Sales, Inc., and Harry E. Ashmore, general sales manager of the Atlantic Utilities Co. Those who attended the meeting were:

Front row—F. R. Halle, Home Utilities Co., Hartford, Conn.; Otto Koerner, Atlantic Utilities Co., E. C. Morrissey, Neilsen Electric Co., New Haven, Conn.; H. J. Poell, Meriden,

Conn.; Howard Lyman, Blau Electric Shop, Inc., Middletown, Conn.; R. J. Martin, Home Utilities Co., Providence, R. I.; F. W. Goetze, Neilsen Electric Co., New Haven, Conn.; Milton Dayton, Allen Bros., Inc., Bridgeport, Conn.; Harry E. Ashmore, sales manager, Atlantic Utilities Co.; Louis Kutscher, Jr., Allen Bros., Inc., Bridgeport, Conn.; Harold Pfeiffer, Home Utilities Co., Providence, R. I.; A. J. Charon, Atlantic Utilities Co.; D. J. Meyers, Atlantic Utilities Co., Ralph Hamilton, Atlantic Utilities Co.

Back row—J. E. Cole, Home Utilities Co., Hartford, Conn.; R. W. Farnum, R. W. Farnum, Inc., Pawtucket, R. I.; J. E. Porryan, Home Utilities Co., Hartford, Conn.; R. A. Burke, Allen Bros., Inc., Bridgeport, Conn.; Chas. Green, Home Utilities Co., Springfield, Mass.; Clarence Nelson, Neilsen Electric Co., New Haven, Conn.; L. T. Hoops, Blau Electric Shop, Inc., Middletown, Conn.; C. J. Colling, sales manager, Allen Bros., Inc., Bridgeport, Conn.;

CABINETS BY
Seeger
SAINT PAUL

are being sold with



REFRIGERATION
ELECTRIC-AUTOMATIC

THE GAS REFRIGERATOR

DEALER RELATES HIS EXPERIENCES WITH GAS REFRIGERATION

Says Electrolux Renders Service Expected; Net Earnings to Dealers Will Increase

THE GASTEAM HEATING COMPANY
Parkersburg, W. Va.

February 26, 1929.

Electric Refrigeration News,
Detroit, Michigan.

Am complying with your request, that I outline for you our experience with Electrolux Servel Gas Refrigerators, in order that you could consider it as material for your issue of May 8.

As a foreword, will give you an outline of my initial set-up. With practically no retail merchandising experience, I started, September, 1927, selling gas appliances majoring on Glow Gas-team Radiator Heating Systems. Sales efforts on the Electrolux started May 1, 1928. From the start I was handicapped to an extent of not having sufficient capital available to properly promote my lines with extensive advertising, elaborate main set-up display, etc. Due to the factory's production not equalling the demand, our expected schedule deliveries were not made as promised, a condition that continued all season.

In a very small territory, we sold thirty-one units last season and could have sold more had they been available during the best selling months.

Our installation costs, including low pressure gas regulator, averaged \$22.25. Our service cost has been practically negligible and I may add we are not anticipating any major expenses on this—the one part of the sale that has long been the red-ink bugaboo of the dealer in merchandising mechanical refrigeration. We have experienced a little trouble with the gas burners due to our factory's error in sending burners spudded for artificial gas instead of natural which is so plentiful in the mountains of W. Virginia. We had a little grief locally with the water syphon valves due entirely to the fact that we have a water pressure ranging from 75 to 110 pounds which did not work silently in a

FACTS ABOUT GAS

The first public display of gas light was made on the occasion of the Peace of Amiens in 1802.

Baltimore was the first city in the United States to light its streets with gas, in 1816. Paris streets were lighted in 1820.

The first home was lighted with gas in 1812.

Gas is authentically recorded as used for cooking first in 1830.

The industry is represented by 987 gas companies, serving 4,600 cities.

In 1927 gas used for heating represented 28.4 per cent of the total sales of gas.

It is estimated that there are 7,250,000 gas cooking appliances.

Gas, published by Michigan Committee on Public Utility Information, Ann Arbor, Mich.

valve designed for about a 45-pound pressure. In order to obtain absolute silence, we were forced to by-pass the syphon which necessitated the use of more water than necessary, but even on that score we had no complaints. We are now using on each installation a water pressure valve reducing our pressure to about 25 pounds which entirely solves the problem and enables us to operate our largest box on less than three gallons of water per hour.

Last May, we operated a seven cubic foot box in our show window for a fourteen-day period with water and gas meters tested and sealed which were loaned by the local water and gas companies. Each meter was wrapped with tissue paper, tied with ribbon, and ends and intersections sealed. The contest created considerable interest as we were giving six prizes to those guessing nearest to the actual operating cost. Two hundred sixty-seven persons visited our show-room and guesses ranging from \$2.98 down to ten cents were made. The exact operating cost as reported by the committee of four business men who conducted the entire contest was .1046 cents for gas, .049 cents for water, a total operating cost of .1527 cents for the entire two weeks period, or an average of a little over a cent per day, and this extreme economy has been the rule in practically all of our installations. This test was, to our intention, an average

one as we were not striving for economy particularly, but I wished to put over to my sales people and the public in general the facts as I knew them. We served seven cases of bottled drinks from the refrigerator, opened and closed the doors many times during the two weeks. In considering this low operating cost, please bear in mind that our local gas rate was only thirty cents per one thousand cubic foot, with a B. T. U. content of 1130. This same test was made later in three other cities in this state with results almost identical considering different water and gas rates.

We recently put on a demonstration of our Electrolux and Eco-Thermal range before eighty-two members of the local Women's Club, a few of whom were Electrolux users. We made two sales that day (December 7), and the comments of the ladies present were extremely gratifying to us as it augurs well for future sales. They were loud in their praises of the Electrolux, especially the economy and absolute silence. We are expecting to sell one hundred units in this small territory this season.

Frankly, I consider the Electrolux superior to any compression type refrigerator, believe it will win competitive cases, believe it encounters less sales resistance, know it will net a substantial profit to the dealer, and am of the opinion that the mechanical refrigerator of the future will be of the absorption type.

The firm that secures the Electrolux Servel franchise will have a product that will render to its customers the service they expect and the net earnings will be ever increasing. I have stated facts and have tried not to let my enthusiasm distort conditions. If I can be of any assistance to yourself or your readers, please command me.

Very truly yours,
R. E. HALE, Manager.

NOW! The Correct Insulation For Refrigerator Cabinets



Illustrated above is magnified cross-sectional view of an Insulite installation. Notice particularly the "cut to size" feature indicated by dotted line.

INSULITE is furnished "cut-to-size" ready for application whatever your requirements may be.

Its strength permits of reduction in or entire elimination of heavy wood framing with consequent reduction in heat loss through cracks.

Its durability assures continuous high insulating efficiency during the life of any cabinet.

It is odorless under the most extreme moisture conditions and through scientific preserving and sterilizing of its fibers, will not rot or disintegrate.

IN SHORT—

Into Insulite Is Built All of the Essentials of the Correct Refrigerator Insulation.

INSULITE

the Wood-Fiber Insulating Board

THE INSULITE COMPANY

Refrigerator Sales Office:
737 Conway Bldg.,
Chicago, Illinois.

Home Office:
Builders Exchange,
Minneapolis, Minn.

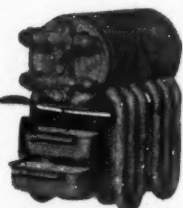
NEW

The "Bucket" Type Float Evaporator For Multiple Installations

LOW COST—SIMPLE—EFFICIENT

The latest development in Evaporators—remarkable efficiency as a result of open vessel or "bucket" type float. Separates refrigerant from oil, which goes back as a liquid, while refrigerant goes back as a gas—tendency is to eliminate sucking of liquid refrigerant back thru suction line.

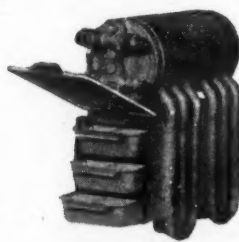
Easily accessible from service standpoint. Needle or seat can be removed without removing head, just remove valve. These detachable valves are recommended by Board of Underwriters' Code.



No. Z02-Evaporator
3 1/2 Ft. Cu. Capacity



No. Z03-Evaporator
Closed View



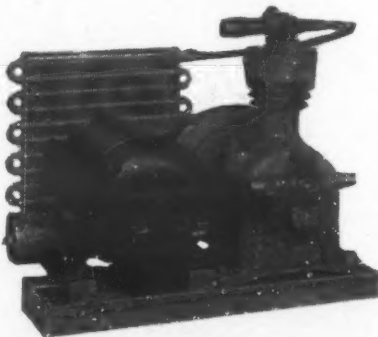
No. Z03-Evaporator
4 1/2 Ft. Cu. Capacity



No. Z03X-Evaporator
5 1/2 Ft. Cu. Capacity

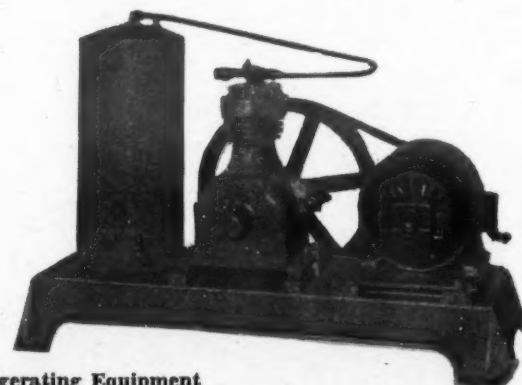
Style A

Condensing Unit is small, compact and without equal in efficiency and simplicity. It is quiet in operation: every precaution being made to eliminate possibility of vibration. Constructed with few moving parts—yet containing all that is essential for the best results. The Compressor is operated with 1-6 and 1/4 H. P. Motors. This machine is the ideal unit for any installation requiring 30 cubic feet or less of Refrigeration.



Style G

Is a one horse power unit of extreme simplicity. We can state without fear of contradiction—that this machine is without equal in the Refrigeration Field. Hundreds of installations have been made with this Unit. With ordinary care in installation, service is practically eliminated.



Our Policy—Practical Refrigerating Equipment

A Full Profit for Our Distributors

A Complete Line—Household-Commercial Water Coolers.

NATIONAL ELECTRIC REFRIGERATION CORP.

SCRANTON, PA.

Philadelphia Zoo Protects Bottle Baby With Electrolux



A. J. Phillips, Mrs. Cadwalader Bowie and Julius

Modern housekeeping methods are now in effect in the nursery kitchen of the Philadelphia zoo's monkey-house, where thousands of dollars worth of rare and valuable animals are kept. To afford complete protection for the carefully prepared food eaten by the "babies" confined in the nursery, an Electrolux gas refrigerator has just been installed.

"Subject to many of the same illnesses and diseases that afflict human children, baby monkeys must have milk, vegetables and fruit that have been properly prepared and preserved," Emerson Brown, zoo director, explained.

In the monkey nursery are animals that could be replaced only at great cost, such as "Julius," baby chimpanzee, who is pictured above. "Julius," who is an orphan, is the only chimpanzee ever to be raised on a bottle. Like a human baby, he is fed every three hours day and night. In the picture, he is shown taking his bottle from Mrs. Cadwalader Bowie, daughter of Dr. W. B. Cadwalader, president of the zoo board, as A. J. Phillips, advertising manager of the Hajoca Co., Electrolux distributors in Philadelphia, looks on.

British Gas Industry Promotes "The Flame That Freezes"

Associations and Local Gas Companies
Join Hands to Advance Gas Refrigeration

By Dorothy Dignam, European Correspondent

A FINE spirit of "boost the new-comer" prevails in Great Britain today on the part of the gas industry towards gas refrigeration. They see in it another important addition to the all-gas kitchen, which development they are naturally much interested in promoting. Gas service and gas-appliances, too, are much better known on the whole in Great Britain than the newer electrical equipment. London, for instance, has had uninterrupted gas service by one company for well over a hundred years. Ninety per cent of the cooking in England is done on gas ranges. It is logical, therefore, that the country should welcome gas refrigeration as a new member of a rec-

eral and keeps the all-gas kitchen uppermost in the feminine mind.

It is with this larger outlook that the British gas industry is actively supporting and promoting the sale of gas refrigerators. Gas companies that do not

ies that are promoting gas refrigeration. In London, Electrolux is sold by the best known company in Great Britain, the 110-year-old Gas, Gas Light and Coke Co. They have large display rooms in all the better neighborhood districts in their territory and a home service department of thirty persons to promote gas refrigeration.

The Gas Light and Coke Co. is also instrumental in having gas refrigeration displayed and demonstrated at all appropriate shows and fairs, and in such official exhibits as that at the Institute of Hygiene and the Empire Food Shows.

SCHURTZ PLANS TO AUGMENT LINE OF ABSORPTION UNITS

Facilities for increasing the production of Schurtz absorption refrigerating systems, has been announced by R. E. Schurtz, of the Schurtz System of Refrigeration, Box 874, Kansas City, Mo. Units of $\frac{1}{4}$ and $2\frac{1}{2}$ ton and other sizes will be brought out this year. At present two sizes are featured, the $\frac{1}{2}$ and 1 ton sizes, and sales have been developed in restricted territory.

The Schurtz automatic absorption type units is used with kerosene, gas, crude oil, or any form of controlled heat. It is adapted for domestic and commercial installation. On farms and dairies where running water is not available, the unit is used with an air cooled condenser.

The Schurtz system operates continuously and the machine contains no moving parts. Two small pipes, supply and return, connect the unit with the refrigerator. In flowing through these pipes the refrigerant does not produce cold until it passes the control in the refrigerator. The system is entirely automatic and the temperature is regulated by a thermostatic control.



An architects' and builders' display financed by the Gas Light and Coke Company of London. Here the gas refrigerator is given as much prominence as the gas range. The London gas company has a model kitchen and a large home demonstration kitchen at their main office and salesroom and in both the Electrolux is featured.

ognized family and the gas industry itself has not failed to appreciate this point and get behind the new appliance.

One manufacturer, of course, enjoys the entire gas refrigerator business in Great Britain and that is Electrolux, Ltd., of London with works at Luton, Bedfordshire and divisional offices in Birmingham, Bristol, Manchester and Leeds; at Glasgow for Scotland and at Dublin for Ireland.

The five hundred dealers representing this company have not been secured without some effort, of course, and strange to say, the gas companies that merchandise and should be the easiest dealers to secure, at first were the most hesitant about signing up. The gas consumed by a gas-operated refrigerator is small as a source of revenue to the gas company unless the rate in that district happens to be rather high.

But the law that every-little-bit-helps holds good in this instance and the gas companies have come to see that every added gas appliance in the home helps to promote the use of that fuel in gen-

merchandise will devote window or floor space to exhibiting Electrolux models, while gas companies that are already listed as Electrolux dealers will push their sales of gas refrigerators by display, easy terms, advertising and direct selling.

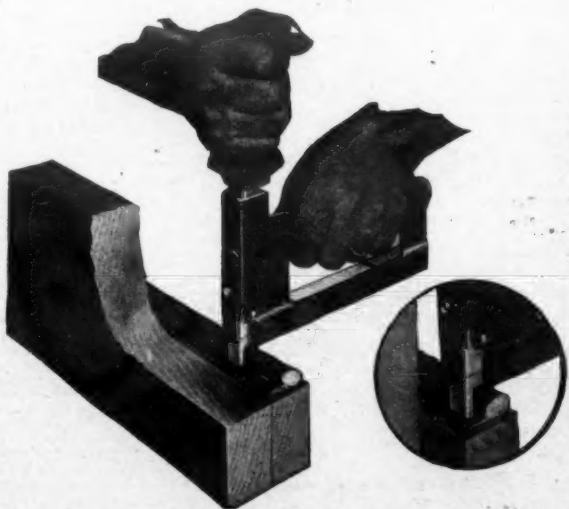
The British Commercial Gas Association advertises gas service and gas appliances over its own name in journals throughout Great Britain. A certain proportion of these advertisements are on the subject of "Gas, the little flame that freezes," and interested readers are invited to write to the Association headquarters for literature. These inquiries are then made available to Electrolux, Ltd.

Also, any member of the Association who merchandises gas refrigerators may have an advertising campaign prepared to his order by the advertising staff of the Association, and the Electrolux company in London has an advertising department at the service of their dealers. The Southampton Gas Company is typical of the energetic supply compan-

Device Tacks Door Gaskets

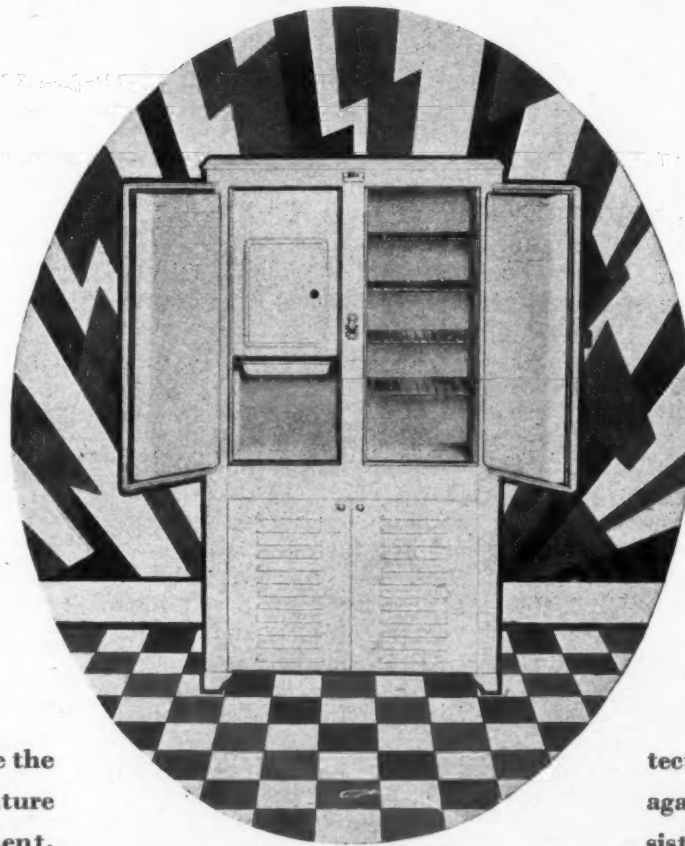
The Markwell Manufacturing Co., 171 Franklin St., New York, N. Y., announces a new tacking machine for fastening rubber gaskets on refrigerator doors. This machine, which is pictured here, is made of pressed steel plate. It is light and durable and is designed to withstand rough usage.

The machine has a capacity of 105 staples and a reserve chamber which holds 420 additional staples. Construction of this tacking machine makes it easy to operate. A light blow is sufficient to drive a staple into the wood. Staples for the machine are furnished in tinned steel, tinned copper and Monel Metal.



The Markwell Tacking Machine

The urge of tomorrow in CABINETS of today



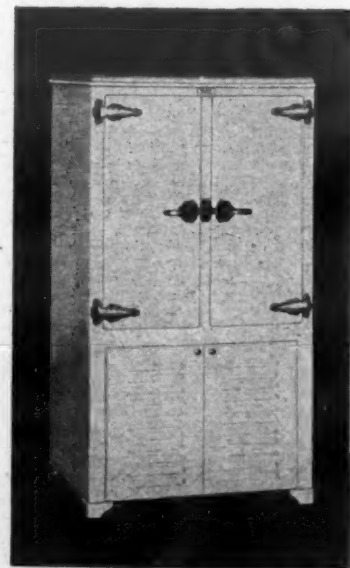
REX CABINETS are the Cabinets of the future as well as of the present. Thousands of installations rendering satisfactory per-

formance with many of the best refrigerating units have a significant meaning. And for many years to come these Cabinets will still be modern. The manufacturer who standardizes on Rex, the Complete Line of Mechanical Refrigeration Cabinets, pro-

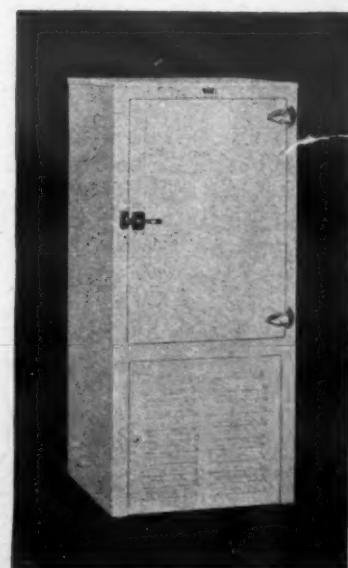
★ ★

Rex

REX MANUFACTURING CO.
CONNERSVILLE, IND.



Residence Model LP55



Apartment Model LE50

All Combinations of Pipe and Tube Ends

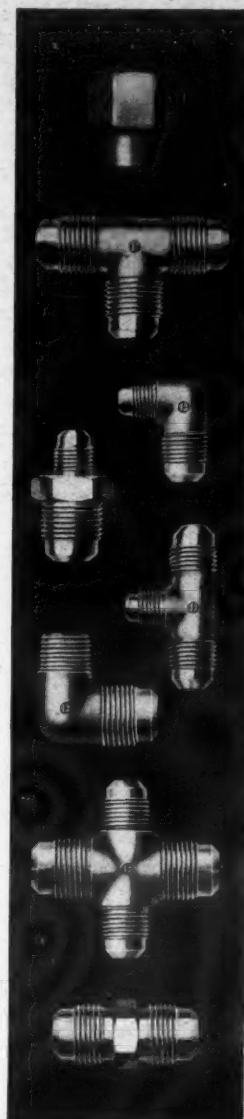
Commonwealth is prepared to furnish all possible combinations of pipe and tube ends in brass refrigeration fittings. All standard sizes—and many specials—are in stock for immediate shipment. All are available upon short notice.

Commonwealth refrigeration fittings are made exclusively from brass forgings and brass rod. The compact grain structure and great tensile strength thus obtained together with unusual precision in machining threads and seats, insure tight, seep-proof connections for the life of your installations.

Catalog R-30 will be mailed upon request. Be sure to send sketch or sample with inquiries regarding special fittings.

Commonwealth Brass Corporation
5835 Commonwealth Ave. Detroit

COMMONWEALTH FITTINGS BRASS



ELECTRIC REFRIGERATION NEWS

The Business Newspaper of the Refrigeration Industry

PUBLISHED EVERY TWO WEEKS BY

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MAY 8, 1929

A Job for the N. E. M. A.

OF SPECIAL interest in this issue is the stenographic report of the public hearing on the proposed refrigeration code for District of Columbia held in Washington, D. C., April 18. Electric Refrigeration News has already devoted much space to the various national and local codes, proposed or adopted, and to the presentation of individual views regarding such regulations. Taking the stand that the industry is entitled to full information regarding activity of such vital concern, the News has repeatedly brought to light significant steps in the progressive development of codes and has done so, in several instances, in the face of outspoken criticism by those engaged in directing the activity. For the first time, however, the News now offers a record of an open discussion which reveals to some extent the conflict of opinion as to the proper scope and content of safety codes.

Readers who have found it difficult to understand the procedure and the inter-relations of various organizations which take part in the development of safety codes may find some enlightenment on the subject in the report of this hearing. On the other hand, those who have been puzzled as to the character and authority of that paradoxical institution known as the Underwriters' Laboratories, whose approval, or "listing," seems to mean so much and so little, may be more confused than ever.

Another mysterious factor in the situation concerns the status of the "National Safety Code" which was formally approved last fall by the sponsoring body, The American Society of Refrigerating Engineers, and which was to be officially released after certain ceremonies by the American Standards' Association. Again we have a paradoxical situation in which municipal authorities are being asked to accept the "National Safety Code" as a guide while, apparently, the said code does not officially exist.

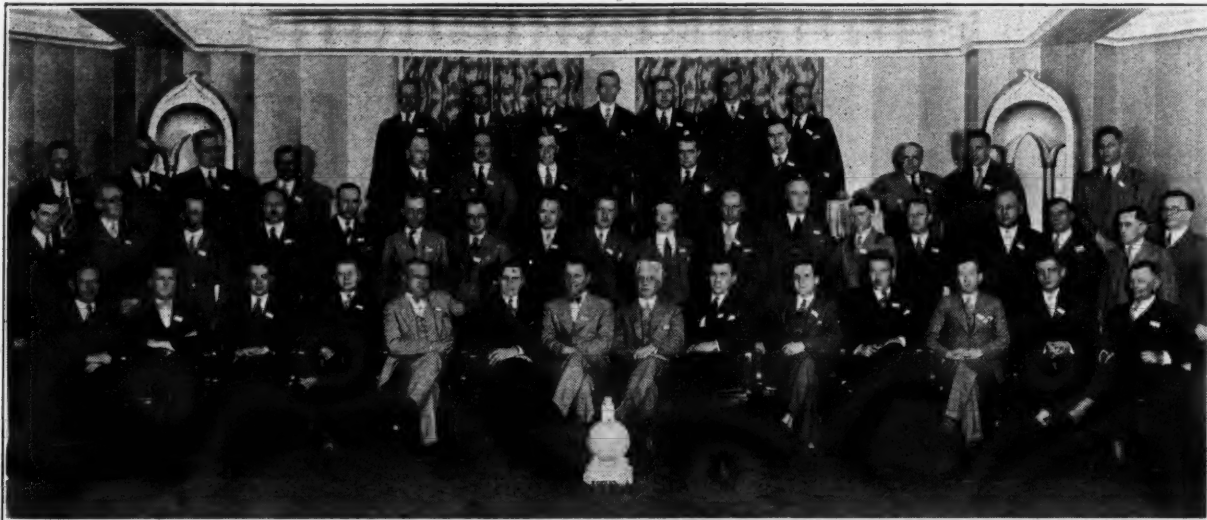
From the viewpoint of the industry as a whole, the most important consideration in code development is that of uniformity. Granted that equipment must be so made and installed that it will insure a full measure of safety to the public, it is obviously fair to ask that such regulations be uniform, within reasonable limits, in all parts of the country. Certainly no public interest will be served by setting up a great variety of complicated rules which will restrict mass production and distribution methods. The confusion and needless expense which may result if every city compiles its own set of safety rules without regard to what has been done in other communities, has been sufficiently demonstrated in connection with municipal codes on electric wiring. The classic example of the effect of the independent action in vogue some years ago, is that of three cities in one western state, each of which had made unqualified rules concerning the location of the hinges on a switch box. In city A the hinges had to be at the right, in city B hinges at the left were required, while in city C only boxes with hinges at the top could be used. Thus, manufacturers were required to make three styles of iron boxes and jobbers were required to stock three styles in order to meet the "safety" requirements in three neighboring cities.

Another strong argument in favor of uniformity is that it reduces the possibility of injecting specifications designed to give one make or type of equipment a competitive advantage over others. When only a limited number of business interests have an opportunity to confer with those responsible for drafting local regulations, there is always a temptation, if not an aggressive effort, to formulate the rules so as to favor the insiders and handicap competition. With codes under consideration in widely separated parts of the country the large and well-organized companies have a distinct advantage because of their ability to assign special representatives to the job. Only through an organization representative of all interests may the small company hope to protect its rights.

With the situation left to a few lobbyists there has been a noticeable tendency to look after private interests with the result that present discussions of safety revolve mainly around such issues as the multiple system vs. individual units, the three-cornered fight between the proponents of ammonia, sulphur dioxide and methyl chloride, and the jurisdiction of steam fitters, plumbers and other unions as opposed to installation by trained refrigeration service men. The whole proposition has tended to become a series of political maneuvers for competitive position and in the meantime, safety, presumed to be the basis for the necessity of codes, has been almost lost sight of altogether.

Now that the electric refrigeration manufacturers have joined forces with the National Electrical Manufacturers Association, steps should be taken to see to it that future code hearings are attended by a representative qualified to speak for the industry as a whole. This Association has ample experience and standing to do the job in a thorough and representative manner.

Utility Men Meet at G. E. Refrigeration Institute To Discuss Central Station Merchandising



Merchandising managers of forty electric utility organizations met at the General Electric Refrigeration Institute in Cleveland April 8, 9, and 10 for a central station refrigeration conference. Means of mutually capitalizing on the electric refrigeration load was the principal subject of discussion.

Advertising Code of Ethics Set Up by Oil Burner Association

THE American Oil Burner Association, Inc., has an advertising code of ethics which is of timely interest both because a code of this sort is somewhat of a rarity and because it is concerned with certain advertising practices that are very much to the fore these days. This is how the code reads:

A. Extravagant Claims.

1. Extravagant generalities are certain to be discounted by intelligent prospects. Such statements as "The last word in oil burners" and "at last the perfect burner" fail to carry conviction, because everyone knows that the last word will never be said nor perfection ever attained. On the other hand, they tend to create the impression that all burners are still in the experimental stage. Even though the advertiser excepts his own device, the reader knows that the former is prejudiced in his own favor. Advertising of this nature only increases the number of prospects who refuse to buy "until oil burners are perfected."

2. Claims of efficiency and performance should be made without comparison with other equipments in either general or specific terms, and should be limited to claims where there is a reasonable possibility for the user or prospective user to investigate.

B. Mechanical Details.

1. There are, and always will be, differences of opinion regarding the relative merits of the various methods of burning oil. The advertised claims by certain manufacturers that the designs of other manufacturers are uneconomical and unsafe have undoubtedly created a widespread feeling in the mind of the public that all oil burners are uneconomical and unsafe, and have thereby retarded the general public acceptance of oil heat. When it is considered desirable to explain the mechanical details of one's own burner, this can and should be done without disparaging reference to other designs.

2. The use of elaborate pseudo-scientific language should be avoided, as it tends to confuse the public mind and create the belief that the burning of oil is a mysterious and complicated process. Public confidence can be completely won only by educating the layman to the knowledge that oil heating is simple, safe and dependable.

C. Safety Features and the Underwriters' Laboratories.

1. To elaborate on "safety features" is to deliberately create in the public mind the idea that oil heating is dangerous. The simple statement that a burner is "listed as standard by the Underwriters' Laboratories" should suffice.

2. Listing by the Underwriters' Laboratories should not be claimed or implied unless the burner advertised has actually received such listing.

3. Listing by the Underwriters' Laboratories should not be used as a basis for irrelevant and unjustified claims.

D. Prices.

1. While there is no objection to quoting prices for burners installed without tanks, the words "tank extra" or the equivalent, should be displayed in type equally as prominent as "completely installed."

2. In comparing prices with other makes of burners be sure that the comparisons are fairly made on the basis of equivalent equipment.—Printers Ink.

REQUESTS FOR INFORMATION

Readers who can assist in furnishing correct answers to inquiries or who can supply additional information are invited to address Electric Refrigeration News, referring to the query number.

1928 Production Figures

Query No. 235—A reader in Missouri asks, "I would like to know just what the figures are for the sale of electric refrigerators for the year 1928 including the following models, Frigidaire, General Electric, Copeland and Kelvinator."

Note—Authentic figures regarding the sale of electric refrigerators by the companies mentioned above are not available at the present time. At a recent meeting of twelve companies it was agreed that such statistics should be collected through the newly organized Refrigeration Division of the National Electrical Manufacturers' Association.

For figures regarding 1928 sales of compressor units by the Frigidaire Corp., see page 22 of the March 27 issue of ELECTRIC REFRIGERATION NEWS. The sales of compressor units from 1921-1928 by this company were made public in connection with the recent Frigidaire-Absopure patent suit. The production figures for 1928 were as follows: water cooled compressors—39,015; air cooled compressors—224,808. Included in these totals were 142,934 compressors which were part of self-contained electric refrigerators.—Editor.

Seeks Agency for Commercial Refrigerators

Query No. 236—A manufacturer of hotel and restaurant equipment in the East writes, "We would like to obtain the agency for a good line of commercial refrigerators both for electric and ice

cooling. We can do a good job for a line that has merits.

"Will you kindly put us on your list and any information that might come to you covering this situation would be appreciated very much by us if you would so advise the manufacturer and at the same time advise us."

Note—The following concerns are well known manufacturers of commercial refrigerators: Dry-Kold Refrigerator Co., Niles, Mich.; McCray Refrigerator Co., Kendallville, Ind.; Northey Mfg. Co., Waterloo, Iowa; Herrick Refrigerator & Cold Storage Co., Waterloo, Iowa; C. Schmidt Co., John & Livingston Sts., Cincinnati, Ohio; Hussmann-Ligotier Co., Hussmann Refrigerator Division, St. Louis, Mo., and the Seeger Refrigerator Co., St. Paul, Minn.

Silverice Balls

Query No. 237—A reader in Pennsylvania writes, "Some time ago in your magazine we noticed an advertisement of nicked balls for use in an electric refrigerator instead of making ice cubes. As we are unable to locate the name and address of this manufacturer, would you be kind enough to advise us on this matter?"

Note—Silverice balls are manufactured by Silverice, Inc., 280 Broadway, New York, N. Y.—Editor.

Water Valves for Kelvinator Unit

Query No. 239—A public utility company in the East inquires, "Will you please furnish us with the name of the concern manufacturing water valves suitable for use with Kelvinator water cooled compressors."

List of Manufacturers

Query No. 238—A reader in Indiana asks, "Kindly inform us if you have a

CAMP COOPERATION IX MEETS AT ASSOCIATION ISLAND, N. Y. AUGUST 2-6

R. Bourke Corcoran, chairman of the Electrical League Council announces that Camp Co-operation IX will be held at Association Island, Henderson Harbor, N. Y., Aug. 2-6. Preliminary discussions of the business program for the summer meeting got under way on Mar. 27 at a meeting of the executive committee of the League Council.

Camp Co-operation is held under the joint auspices of the Society for Electrical Development and the League Council. This year it marks the eighth annual conference of local Electrical League managers. During the last two years mid-winter conferences have been held by the Electrical Leagues.

ST. LOUIS, MO., ENDEAVORING TO DRAW NATIONAL DAIRY SHOW TO PERMANENT HOME THERE

A special committee has been appointed following a movement originating in the St. Louis Chamber of Commerce to bring the National Dairy Show to a permanent home. This committee consisting of F. W. A. Vesper, chairman; Harold M. Bixby, E. A. Faust, L. W. Baldwin, president of the Missouri-Pacific lines, and others are to foster the project.

The National Exhibition Co. of St. Louis, Mo., was organized to provide a site and build adequate facilities for the show. This site comprises seventy-five acres, and three structures are now being erected.

list of domestic and commercial electric refrigerator manufacturers and the cost of same.

Note—See pages 29-39 of the January 2 issue of the NEWS for a list of manufacturers of domestic and commercial electric refrigerators.—Editor.

Non-Electric Refrigerators

Query No. 240—"We are subscribers to your publication and wish to have the addresses of manufacturers of refrigeration of non-electric or gas type, or some form of automatic, suitable for installation were current is not available."

Note—Serval, Inc., Evansville, Ind., manufactures the Electrolux refrigerator which is operated by gas. The Perfection Stove Co., Cleveland, Ohio, makes a unit known as the Superflex, which is operated by a kerosene burner. The Crosley Radio Corp., Cincinnati, Ohio, makes a device called the Ice-Ball in which the refrigeration cycle is actuated by placing a portion of the unit in hot water.—Editor.

Automatic Soda Vending Machine

Query No. 241—A reader in Pennsylvania writes, "I would be interested in having you advise me of a firm that you know would be interested and capable of distributing a vending machine that carbonates a soda by the insertion of a coin."

Export Managers

Query No. 242—A reader in Ohio asks, "Will you kindly send me the names and business addresses of the general export managers of the concerns manufacturing the Copeland, Electrolux, Frigidaire, General Electric, Holmes, Kelvinator, and Serval refrigerators, if you have the same available?"

Note—H. M. Robbins, 120 Madison Ave., Detroit, Mich., are export representatives for Copeland Products, Inc. R. A. Lundquist is export manager of Kelvinator Corp., 14250 Plymouth Road, Detroit, Mich. John MacFadden is general export manager of Serval, Inc., Evansville, Ind., manufacturers of Serval and Electrolux refrigerators.—Editor.

Refrigeration Code Hearing at Washington, D. C.

All Interests Protest Against Refrigeration Code Proposed For District of Columbia

Manufacturers of Both Domestic and Commercial Machine, Ice and Ice Cream Companies Builders and Dealers Point Out Deficiencies in Rules

A PUBLIC hearing called by the Board of Commissioners for the District of Columbia for the purpose of discussing the proposed refrigerating code that has been under consideration for adoption as a part of the Plumbing and Gas Fitting Regulations of the district, was held in the Board Room of the District Building, Washington, D. C., April 18, 1929.

Owing to the fact that the Washington market has been a battle ground for a keen competitive fight between leading manufacturers of equipment and also because of the possible influence on other local governmental bodies which may result from the adoption of regulations in the District of Columbia, the hearing was attended by prominent refrigerating engineers and representatives of various interests which would be affected by the adoption of the proposed code.

After hearing numerous objections to the proposed code (published in full in the April 24 issue of the News) and acting on several requests for more time to prepare suggested changes, the Commissioners agreed to hold another hearing within three weeks.

The stenographic report of the proceedings printed in full herewith gives an interesting picture of the conflicting views regarding regulations intended to insure the public against safety and casualty hazards. While there is evidence of a more conciliatory attitude on the part of certain groups which have been in opposition at previous code meetings, it is evident that considerable work remains to be done before a code can be devised which will satisfy all demands.

Following is a complete record of the proceedings:

BEFORE THE COMMISSIONERS OF THE DISTRICT OF COLUMBIA

In Re Proposed Code for Regulation of Refrigerating Devices in the District of Columbia.

Board Room, District Building, Washington, D. C., April 18, 1929.

The above entitled matter came on for hearing before the Board of Commissioners for the District of Columbia at 10 o'clock a. m., pursuant to notice.

PRESENT: Commissioners Dougherty (Chairman) and LaDue.

ALSO PRESENT: Mr. Royal T. McKenna, Smith Building, Washington, D. C., representing Frigidaire, Kelvinator and Copeland Products, Inc.

Mr. Roy E. Smithson, Dayton, Ohio, representing Frigidaire.

Mr. Glenn Muffley, Chief Engineer, Copeland Products, Inc.

Mr. C. C. Spreen, Chief Engineer, Kelvinator.

Mr. E. T. Williams, No. 51 East 42nd Street, New York City, representing Servel, Incorporated.

Mr. Ernest H. Daniel, Washington, D. C., representing American Ice Company and others.

Mr. Harry E. Kidwell, representing American Ice Company, Washington, D. C.

Mr. Rodda, Chief Engineer, Underwriters Association of the District of Columbia, Washington, D. C.

Mr. John E. Starr, appearing for the American Ice Company and various manufacturers of refrigerating machinery.

Mr. S. B. Carpenter, representing Brunswick-Rochelle Company.

Mr. H. Harrison, representing Brunswick-Rochelle Company.

Mr. H. E. Edwards, representing Compressed Gas Manufacturers' Association.

Mr. Rufus J. Lusk, Washington, D. C., representing Operative Builders' Association.

Mr. A. H. Baer, representing the Frick Corporation.

Mr. Thomas P. Bones, Vice President, Wardman Construction Company, Washington, D. C.

Mr. C. L. McRea, Washington, D. C., representing National Electrical Supply Company.

Mr. J. B. Churchill.

Mr. J. E. Heflin, representing Heflin & Company, Inc.

Mr. John Lersch, Washington, D. C., representing Operating Engineers' Union.

Mr. Wagner and Mr. Hurley, Washington, D. C., representing Barber & Ross.

Mr. Richardson, representing National Association of Fire Fighters.

Mr. C. O. Thayer, representing manufacturers of refrigerating machinery.

Mr. Heggie, Washington, D. C., representing Heggie-Simplex Boiler Company.

And others.

PROCEEDINGS

Commissioner LaDue: The meeting will please come to order.

This hearing is called this morning for the purpose of having a general discussion of the proposed refrigerating code that the District Commissioners have under consideration for adoption as part of the plumbing and gas fitting regulations of the District of Columbia.

The purpose of the hearing is to give

those who are interested in the subject an opportunity to express any views they may have with regard to this proposed code.

We will start with the proposition that the District is going to adopt a code to govern the installation of refrigerating apparatus. So, I will ask that there be no particular argument on the propriety or advisability of adopting such code. If we can confine the discussion to the terms of the proposed code with any suggestions for additions or omissions that may be pertinent, we will get along faster.

The meeting is held by the Board of Commissioners, of whom two members are present, the third member, Commissioner Tallaferrro, being unavoidably absent.

We have received a number of letters from interested parties since this proposed code was made public, which, however, I do not think it necessary to read at this time. They are rather voluminous, and I presume that the points raised are familiar to all of you and will doubtless be raised during the hearing.

I do not think it necessary to read the proposed code unless it is desired.

These documents may be placed in the record if any of the parties desire.

We have no special order of procedure to suggest, but I presume you gentlemen have formulated your own plans on the subject.

I will throw the meeting open for suggestions or comments or remarks by anyone who is particularly interested in this matter. I request that anyone who speaks—we want to make a record of this—anyone who rises to speak will please announce clearly his name and address and the particular interest that he represents before the hearing.

Statement of Mr. Ernest H. Daniel, Washington, D. C., representing ice cream manufacturers.

Mr. Daniel: If the Commission please, my name is Ernest H. Daniel, and I represent the ice cream manufacturers.

At the last hearing I think the ice cream manufacturers were advised that these regulations would not apply to the ordinary ice cream cabinet, but since receiving a copy of the proposed new code we find that that coverage has been included.

It seems to us that we should have had more notice of the change of mind of the Commissioners, in order to have studied the subject more carefully and prepared our arguments. We are therefore at some disadvantage. I am here representing the ice cream manufacturers, and, as far as they manufacture ice, representing that also. We are here to protest against the adoption of the code as written, and particularly as it attempts to regulate the use of ice cream electrically refrigerated ice cream cabinets.

Commissioner LaDue: All right. Your protest will be noted. If you will give some arguments to support it, either now or at some later date, we will consider them.

Mr. Daniel: Very well. The argument I make is that the code, as written, is unreasonable in that it proposes to put upon the ice cream manufacturers and the ice manufacturers unreasonable restrictions.

For instance, the Carry Ice Cream Company, of which I am president, manufac-

tures more ice in the wintertime than it uses or sells. It manufactures less ice in the summertime than it sells. Therefore, it stores ice in the wintertime to take care of its trade in the summertime. This ice, when stored, is stored in blocks and kept under refrigeration. Should one of these refrigerating machines break down or need repairs on a Saturday night, for instance, it will be necessary for us to wait until Monday morning to apply for a permit, and then, after receiving a permit and repairing the machine, it will be necessary to have the machine inspected by a plumbing inspector and the fire marshal. I think that no reasonable man could expect us to subject \$40,000 worth of ice to that sort of a regulation.

Commissioner LaDue: Which paragraph of the regulations does your first objection address itself to?

Mr. Daniel: (reading) "All refrigerating apparatus and the installation or repair thereof shall be in accordance with schedule of refrigerating apparatus requirements as approved by the Commissioners, and kept on file in the office of the Engineer Commissioner."

That applies particularly. There are other things in here.

Commissioner LaDue: That is paragraph E on the first page.

Mr. Daniel: Yes, sir.

Then the requirement in the proposed code which stipulates that there shall be a master switch controlling the current which serves our ice cream cabinets and also serves any other electrically controlled machinery in one building. That imposes a very severe restriction upon the ice cream business, unnecessary, and is a hardship, and is unreasonable.

We put in ice cream cabinets in the ordinary dealers' stores. We put ice cream cabinets in drug stores which may be in apartment houses having a complicated system of electric lighting, refrigerating or otherwise, and our practice is, as required by the electric light company, to put in a separate meter controlling the electricity which goes to our particular cabinets. You can see what an embarrassment it will be to us if we have to look up our electric conduits or wires in some way to the conduits and wires of the apartment house and have the whole thing controlled by a master switch.

The ice cream companies pay for the electric current taking care of these ice cream cabinets, which feature would result in another confusion.

There is a provision in this code of regulations which speaks of the necessity for taking out a permit for air conditioning apparatus. That is unreasonable and cannot possibly be enforced. You can see very readily that anyone who wants to put a fan in his office or an ozone machine in a cold storage room where food is kept is not going to take out a permit every time he wishes to hook up such an instrument as that. So that we will be having bootlegging air conditioning instruments all over the city.

There are other provisions in this proposed code which we have not had time yet to thoroughly study completely, but those are only occasional objections which occurred to us in a casual reading of this code. It was evidently written by someone who does not understand the practice in the ice cream business and businesses having to do with refrigeration, such as taking care of foods and taking care of ice cream.

Just another objection that occurs to me is this, that frequently we have to change cabinets. We put a cabinet in a store for ice cream, and the business of that man grows suddenly in warm weather, and we are required to put in a larger cabinet. Under the code, as provided here, we would be compelled to take out an additional permit, probably have an inspection before we get it. This means, in whose store we first put the cabinet for the ice cream, having ice cream in his cabinet to take care of, would be at a serious disadvantage. There would be loss of food resulting if we did not take care of his requirements quickly, which we could not do under this code.

You see from my remarks, gentlemen, that we have been unable to give this code proper study, due to the fact that we were advised at the former hearing that our ice cream cabinets would not be included in the regulations. So if my argument does not appeal to you, we are going to ask you to give us further time and an additional hearing on the provisions as they apply to our particular business.

Commissioner LaDue: How much time would you ask?

Mr. Daniel: We would like to have two weeks.

Chairman Dougherty: In which to file a statement?

Mr. Daniel: In which to have a hearing and discussion of the matter. It is a very difficult thing, on a technical question of this sort, to place our views properly before the Commissioners. There are questions which will be suggested by any argument we make, whether written or oral, that should be answered and talked over at the same time. I believe that the Commissioners are attempting to do something for the public good, and we are just as anxious to do something for the public good as they are, but we do not want them to lead themselves or to lead us into embarrassing situations, due to a misunderstanding of the situation.

Commissioner LaDue: You think two weeks will be sufficient time to enable you to get your statement in?

Mr. Daniel: I do.

Commissioner LaDue: Very well, sir. You will be allowed two weeks for that, and the question of a hearing on that statement or in connection with it can be decided at that time.

Mr. Daniel: May I ask the same indulgence as far as the large commercial ice machines are concerned?

Commissioner LaDue: Do you represent them?

Mr. Daniel: I do, so far as the ice cream manufacturers are ice manufacturers. The ice cream manufacturers, I presume, manufacture about 40 per cent of the ice used in the homes of the city of Washington. We are a large factor in the manufacture of ice—not alone of ice cream.

This code, I think, without intention on the part of the Commissioners, is imposing some very severe hardships upon the large manufacturers of ice cream and upon the large storers of food under refrigeration.

Commissioner LaDue: I take it that the ice manufacturers can take care of themselves. They are probably represented here.

Statement of Mr. Harry E. Kidwell, representing American Ice Company.

Mr. Kidwell: Harry E. Kidwell. I represent the American Ice Company. I feel very much as Mr. Daniel does about this matter. This is something that has been

brought to our attention all of a sudden. We have not had ample time to consider it, and I do feel indeed that it is imposing a very severe penalty on the ice manufacturers.

The American Ice Company is the largest in Washington, and I think it would be a catastrophe if such an ordinance as this was allowed to go into effect. The idea of one of our machines breaking down on Saturday night or Sunday or at any off period, and we having to wait to get a permit to make the necessary repairs on that machine, I think is out of all sound reasoning.

I realize that the Commissioners are trying to do something for the public good, and naturally we want to co-operate. Commissioner LaDue: Do you often have breakdowns?

Mr. Kidwell: Absolutely. Yes, indeed. Every ice machine has breakdowns. Breakdowns in our ice machines would take the refrigeration off of our storehouses. We store 40,000 tons of ice.

Commissioner LaDue: Will two weeks be sufficient for you?

Mr. Kidwell: In that two weeks what are we to do?

Commissioner LaDue: Put in any objections you have here, or any arguments or suggested changes that you want to make.

Mr. Kidwell: I think Mr. Starr of our New York department, is here. He says he thinks this can be done, but that is a very short time to prepare our answer. I would like to have three weeks, if possible.

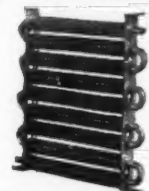
Commissioner LaDue: Suppose you try two weeks and see what you can do in that time.

Chairman Dougherty: Of course, your statement might run to the point of objections to what is proposed here, but, in addition to that, we want, naturally, all constructive criticisms, something that you propose as an alternate proposition to what is proposed here, so that should be considered.

Mr. Daniel: There is one further suggestion that I would like to make, and that is that some of the terms used in this code should be defined. The terms used are very general, and might mean a great deal. For instance, the word "repairs". Just what do you mean by "repairs"? Does the word "repairs" mean any change whatever, or any correction of any defect or undesirable condition at a particular time? Would that mean "repairs"? If that word is not defined it is going to make it still more difficult to understand what the code is endeavoring to do. The ice cream manufacturers will submit, I think, within the time you have given us, some suggestions as to the defining of these terms.

(Continued on Page 14)

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One Piece Construction

Rome Turney Radiator Co.
ROME, N. Y.

FLINTLOCK CONDENSERS

Efficient — Economical Compact

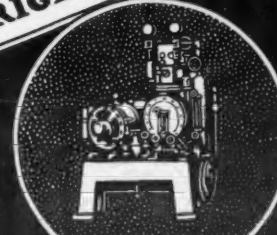
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WRITE FOR OUR BOOKLET

FLINTLOCK CORPORATION

4461 W. Jefferson Ave.
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BRUNSWICK-KROESCHELL REFRIGERATION



32 years of continuous and successful application

Capacities: 500 lbs. refrigerating effect and up, covering the entire field of applied refrigeration.

Refrigerants: Ammonia; Carbon Dioxide; Methyl Chloride.

BRUNSWICK-KROESCHELL COMPANY
Refrigerating & Ice Making Machinery
NEW BRUNSWICK, N. J. - CHICAGO, ILL.

It isn't altogether the costly accidents it saves you...

The Slingabout makes profits for you in faster deliveries and more efficient service

WE WONDER if refrigerator dealers have ever figured they'd make profits with Slingabouts, even if Slingabouts didn't save money by protecting the refrigerators and houses into which the refrigerators were being installed?



Time for instance... that's pretty valuable. Starting the delivery, the Slingabout is on in two minutes. At the home it is off in less than that. And on the way, carrying it around corners, through narrow doors or up ticklish stairways, the firm grips of the sling, the easy handholds, and the protection for knuckles cuts time off the job.

Lower net overhead...another way of increasing net profits. You pay your delivery men the same wages whether you furnish them

Slingabouts or not. But more deliveries per day with the Slingabout brings you more work for your money!

Write us. The largest electric refrigerator manufacturers are recommending Slingabouts to their dealers. It pays to use them. Tell us your line and we'll quote you prices. Charles J. Webb & Company, 116 Chestnut Street, Philadelphia, Pa.

WEBB Slingabout

Every Cylinder Analyzed Absolutely Pure Bone Dry for DIRECT CHARGING

also Ton Drums Tank Cars

ANSUL CHEMICAL COMPANY
MARINETTE, WISCONSIN

Commissioner Ladue: Very well. Mr. Royal T. McKenna: Mr. Commissioner, my name is Royal T. McKenna. With Mr. A. C. Campbell I represent Frigidaire, Kelvinator and Copeland. With me today are present Mr. Smithson, sales manager of Frigidaire; Mr. Spreen, Chief Engineer of Kelvinator, and Mr. Muffley, Chief Engineer of Copeland. In approaching the code—and I am merely making this as a statement of counsel—it is one of friendliness, because it is the attitude of these companies that I represent that a code is most desirable. Most desirable, we think, for the protection of the companies and the stabilization of the industry.

In analyzing the code we found some provisions to which we could give our whole-hearted concurrence; to others we could give lukewarm concurrence, and to still others could give no concurrence at all. We have analyzed the code by sections beginning at Section 1 and taking them up serially, saying wherein we are in accord and wherein we differ.

During the past several years there have been installed in the United States approximately 25,000 multiple installations. I think we can safely say, without successful contradiction, that the great bulk, perhaps over 90 per cent, have been installed by the three companies whom we represent.

I have a witness here who has gone carefully over the code and who has prepared some comments. I have also prepared them in tabular statement form. If you would prefer to have me submit it, it would probably take an hour for this witness to read it and explain it to you, but if you would prefer to have it submitted and made a part of the record, I will be glad to follow your wishes in the premises.

Mr. E. T. Williams: May I rise to a point of order? I think we would all be interested in listening to those changes if we could hear them.

Commissioner Ladue: We feel that way about it. Mr. McKenna: Very well. I will ask Mr. Smithson to sit over here and read that statement, and you may ask him, perhaps after each section, any questions you wish, rather than to wait until the conclusion of the entire reading.

Commissioner Ladue: I would suggest that if anyone desires to take advantage of Mr. McKenna's offer to have the witness answer questions, that such questions as you wish to ask be addressed to the presiding officer, who will decide whether they shall be put to the witness or not. That will save getting into an argument here between various parties.

Mr. McKenna: May I also inquire whether the letters referred to by you in your opening statement this morning are matters of record which are open for public inspection or for my inspection—not necessarily now, but at any time? I make that inquiry because I would like, as far as I can, to assist the Commission in the determination of the questions before them. I and the three companies I represent want to give you our entire cooperation.

Commissioner Ladue: I see no reason why those letters should not be a part of the record of the case. If anybody has written a letter in here that he does not want to have made a part of the public record, he can withdraw it.

(The letters above referred to are as follows:)

SERVEL, Inc.
51 East 42d Street
New York, N. Y.
New York, April 15, 1929.

"Mr. W. B. Ladue
Colonel, Corps of Engineers
U. S. Army
Engineer Commissioner, D. C.
Washington, D. C.
Dear Sir:

"1. I have notice of public hearing which will be held in the Board Room of the District Building to consider proposed Municipal regulations governing the installation of refrigerating machinery for the District of Columbia. I have also received a copy of these regulations and would like to suggest some modifications.

"2. In my judgment, the proposed regulations include many very good provisions. However, there are some of these which would impose undue burden and I think would be impracticable to enforce.

"3. It is particularly desirable to have uniformity so far as practicable, in codes throughout the country which affect this industry. As you know, the American Society of Refrigerating Engineers has been working on a code for many years and has adopted certain terminology to identify the various parts entering into refrigerating systems. The systems have been divided into classes based on the amount of refrigerant which they contain. This same terminology and classification has been included in the New York City Code and in the so-called 'National' code of the American Standards Association. I would therefore earnestly recommend that at least the same terminology and classification of systems be adopted in this draft and further that its provisions be brought into conformity with the A. S. A. Code so far as they may be suitable to meet your local conditions.

"4. With regard to the provisions themselves, I beg to submit the following comments:

Section 11 (b)

"(a) This provision would put restrictions on refrigerating machines however free from hazard they might be. There is no possible hazard, for instance, in a machine using water vapor which operates only at and below atmospheric pressure. There are also chemical elements which are non-irritant, non-flammable and entirely harmless and which condense and vaporize to produce refrigeration at and below atmospheric pressure. These also would be under restriction while there would be no more danger from them than from the ordinary ice box or kitchen table.

"To require a permit and a tax on them where used in a residence, or other dwelling, would not only be unjustifiable but would destroy all incentive of manufacturers to better their product in the direction of safety.

"(d) This provides that permits must be obtained before commencing any part of the work of installation. I question this will be practicable in the smaller machines. In the New York Code, forty-eight hours after completion of installation is allowed for applying for permit. This was adopted after very careful consideration.

Schedule of Refrigerating Apparatus Requirements Classification

"Class A—Neither permit nor fee should be required for the small unit type refrigerator in which the operation is all contained within the cabinet when installed in residences or multiple dwellings. A man's home is his castle and so long as he does not endanger his neighbors there is no justification for imposing restrictions on his refrigerator.

"Class E—The same comments made regarding Class A apply here.

"Class F & G—The fees specified in these sections impress me as being excessive especially for the small commercial machines and it would seem desirable to grade them according to their refrigerant content or refrigerating capacity. To charge ten dollars for a small commercial machine, as specified in Class G, would be extortion. In the New York Code, this amount covers installations up to thirty tons.

Approval

"To require approval of Underwriters' Laboratories on all piping, fittings and devices of the established Standard Ammonia Systems is an unnecessary burden to impose. Such approval should be limited to the household and smaller commercial types and multiple systems in Apartment dwellings. It might, however, be desirable to specify that the construction, as well as the piping connections in the larger systems, shall conform to the rules and regulations or recommended practices of the American Standards Association so far as such can be applied.

Plans

"Plans should not be required for commercial installations containing not more than 20 or 25 lbs. of refrigerant.

Inspection

"Class A should require no inspection beyond the original approval of a model by the Underwriters' Laboratories.

Emergency Switch

"This is neither necessary nor desirable and would be entirely impracticable, for instance, in the case of individual units in Apartment dwellings where the refrigerating machinery of a building is centralized in a closed machinery room, such switch might be desirable, especially in the larger installations. This provision should be revised to permit connection of the individual household unit directly to the house lighting system.

Refrigerant Connections

"The question of brazing or sweating screw joints in refrigeration systems has been the subject of considerable debate by various committees on Refrigerating Safety Codes throughout the country and the consensus of opinion on this is very well expressed in the Installation Code of the National Board of Fire Underwriters, reading as follows:

"Pipe joints shall have standard pipe threads and shall be made up with materials suitable to refrigerant employed."

"Sweating or brazing of pipe threads in the field is regarded as impracticable and unnecessary."

"The requirement that copper tubing must be enclosed in 1 1/4" or larger Standard Underwriters' rigid or gas tight flexible conduit and all connections or valves enclosed in gas tight steel junction or valve boxes would shut out a system which has recently been perfected for multiple systems in Apartment dwellings. In this system, the liquid refrigerant line is enclosed in the suction line. This suction line consists of a 3/4" standard iron or non-ferrous metal pipe. The valves are of the packless stem type, are located in full view and within easy reach, making them immediately accessible in case of emergency. A complete description with installation instructions is attached hereto.

"The liquid line in this system is enclosed throughout in the main lines inside the suction piping. The liquid line is the dangerous line. Should a leak occur in this system, refrigerant will not escape to the outer air but will be confined to the suction line which is connected to the inlet of the compressor which permits of its being pumped out.

"Compared with the present system of enclosing both liquid and suction lines in an outside conduit and placing the valves inside of steel wall boxes, none of which it is practicable to make gas tight, may be regarded as ultra safe and should be given preference in rather than prohibited from the Safety Code.

"In this system, a pressure relief valve was originally shown on the uppermost riser junction box and an extension from the discharge of this valve carried up through the roof. This is not shown in the description enclosed herewith but if thought necessary may be specified in the code.

Tests

"Any test required on completed systems where refrigerant connections are made in the field should be definitely specified in the code itself as to the pressure to be applied for the respective refrigerants and the method and duration of such test.

"5. I would suggest that provisions be added to cover the following items:

"(a) A limit should be placed on the maximum amount of refrigerant that may be used in a multiple system installed in an Apartment dwelling and the number of such systems permissible in any one building.

"(b) Provision should be made in the code to insure the presence of a competent operator on the premises where multiple systems in Apartment dwellings and other buildings, excepting private residences, are installed when the refrigerant content of such systems exceeds (say) 50 lbs. Such operator should be certified as to his fitness.

"(c) Provision should be made for reporting to the Administrative authority all accidents, relating to refrigerating systems, involving the escape of refrigerant. This may necessitate the requirement that a notice of such provision be posted at or near the refrigerating apparatus, giving instructions as to who to notify.

"6. These suggestions are respectfully submitted for your consideration with a view to assisting you in securing the greatest possible degree of safety with the least burden to the manufacturer, the dealer and the user and the simplification of the administration and enforcement of the code. I shall be glad to cooperate with you to the best of my ability to this end.

Very truly yours,
E. T. WILLIAMS."

NATIONAL ELECTRIC SUPPLY
COMPANY
Washington, D. C.

"April 17, 1929.

"Colonel W. B. Ladue,
Engineer Commissioner,
District Building,
Washington, D. C.

"Dear Commissioner:

"This will acknowledge receipt of yours of April 11, also with enclosures proposed Refrigeration Regulations.

"In reviewing these proposed regulations dated April 11, sent to our Engineers of Refrigeration, they make some comments and suggestions which we are enclosing herewith for consideration, with the hope to have your review.

"Assuring you of our appreciation, we are

Very truly yours,

NATIONAL ELECTRICAL SUPPLY
COMPANY,
T. L. Townsend,
Vice President."

"April 16, 1929.

"Commissioners of the District of Columbia.

"Gentlemen:

"The record of the National Electrical Supply Co. in promoting civic betterment, in generally assisting in every undertaking for the public good, and its record in business in this city are known to you.

"In the light of this, we submit our comment on the proposed code relative to refrigeration, not with a selfish motive, but with a desire to promote public safety and welfare as may be necessary.

"We believe that the proposed code fails to take into consideration the general trends in industry and particularly the refrigeration industry. These trends are following two distinct lines:

"1. The first trend is to manufacture the component parts of refrigerating machines as separate units, to ship these units separately to a local dealer or agency, and to then assemble these units in various combinations by means of locally employed mechanics.

"2. The second trend is to eliminate all mechanical work of assembly and installation, by designing the mechanism so that it is manufactured and assembled completely at the factory. Under this trend, we are dealers with merchandise rather than machines; installation involves no mechanical work or skill whatever, and the mechanism becomes immediately operable when connected to electrical or other outlets provided in accordance with regulations already in existence in the District of Columbia and elsewhere.

"If the Commissioners, in their opinion, feel the necessity of inspecting and otherwise providing for public safety of apparatus of the type covered by trend No. 1, we believe that such regulation and inspection is probably reasonable, and we offer no objection, but on the contrary will to the best of our ability support any reasonable regulations so enacted in connection with products sold by us.

"As to apparatus covered by the second trend, however, (whether manufactured by companies represented by us or by others) we can not see where, first, any regulation is necessary.

"Such units are designed with the idea of complete flexibility of use. They take the same place in the life of the home as electric fans, vacuum cleaners, electric ranges, vibrators, exercisers, and the host of other electrical appliances that are daily making home and office life more comfortable and easier.

"We submit that electrical refrigerators, designed, manufactured, and sold as complete units, calling for no mechanical work after fabrication and shipment should properly be excluded from the scope of this regulation.

"Further, we cannot see how enforcement of the regulation and subsequent inspection can be easily secured. In most cases the units are completely portable; indeed, some are so mounted on wheels as to be moved from place to place. They comply fully with the electrical code.

"Mechanically, they are not as inherently dangerous as an electric fan. Chemically, the quantity of refrigerant employed is such that there is extremely small hazard connected with the escape of the refrigerant should a leak occur, and further, the method of manufacture tends to eliminate the hazard from leaks.

"We cannot see where the inspection of a complete unit would be of any benefit. As we read the proposed code, this inspection is in addition to existing electrical and other inspections. In the case of such a completely assembled unit, what would the inspection cover?

"We believe that an unnecessary tax for inspection of even \$1.00 is contrary to the public good, because it would merely mean raising the price to the consumer, with no accruing benefits. Manufacturers are constantly endeavoring to reduce prices in every way in order that more and more people may benefit from the use of these appliances. Such a tax defeats this effort.

"We illustrate the above points with a study of the General Electric unit sold by us.

"Every General Electric unit is completely portable.

"The unit complete is shipped ready to run. Mechanism is entirely enclosed and hermetically sealed in a steel case. All that is necessary to install is to remove from crates and set in place. All joints are welded. All parts will stand test pressures far beyond anything proposed in the regulations. Violent mechanical means are necessary to start leakage, such as cutting or breaking heavy tube.

"In case of failure to operate, units are exchanged and defective units returned to manufacturers. No repairs, etc., accomplished on the job.

"In view of the above, we urgently request that the proposed code be modified to eliminate the inspection and fee for refrigerators completely manufactured and assembled and sold as a complete unit without local mechanical work.

SECT. 11-B

"(a) We take exception to the inclusion under this section of small refrigerating units, designed for installation without the necessity of any mechanical work whatever, particularly as to a unit of the hermetically sealed type where the entire mechanism is assembled complete at the factory and is not subject to repair on the job.

"(b) Similar exception is taken to this paragraph. A unit with welded joints, completely assembled and tested, is suitable for installation under any conditions.

"(d) Exception noted for 11-B is repeated. We cannot see where there is anything to inspect under this heading, as all units are identical and not subject to installation difficulties.

"(e) More detailed information requested.

"(f) A unit of the hermetically sealed type is replaceable in its complete assembly. No permit for this should be required any more than for original installation.

"(g) Does not apply to General Electric unit in general. Seems reasonable to us.

"(h) Should not apply to individual unit.

SCHEDULE OF REFRIGERATING APPARATUS REQUIREMENTS

Class 'A'

"We can see no useful purpose served in inspecting each installation. It is possibly correct to approve units according to type, but to place an installation fee on all such equipment is an unnecessary tax upon the business and is in itself discriminatory.

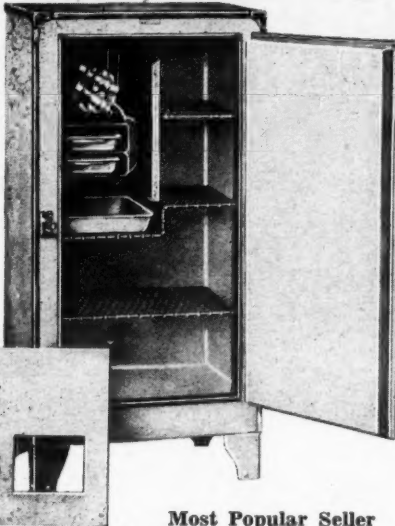
"Factory assembled units are necessarily identical. If they are defective in their method of manufacture, nothing can be gained by an inspection after installation. With the rapid trend toward the individual factory-built units, there is a growing safety factor in the very elimination of mechanical work performed on the job.

"We further recommend that the capacity limit of this class be raised to 15 pounds of refrigerant.

Class 'B', 'C', 'D', 'E', 'F', 'G', 'H'

"Wherever units for such purposes are manufactured complete in such manner

Crystal All-Steel Apartment House Cabinets



Most Popular Seller

No 521—5.2 Cu. Ft. 7 Sq. Ft. Shelf Space. Removable Front Baffle, Porcelain Drip Pan, 22 1/2" wide, 45" high, 17 1/2" deep.

Can also be furnished without legs. Special Sizes to meet any requirement.

Ask for Details.

CRYSTAL REFRIGERATOR CO.

FREMONT, NEBRASKA

CHICAGO OFFICE AND DISPLAY ROOM—225 No. MICH. AVE.

The Norge Franchise Presents Striking Advantages!

Merchandisers—men of ambition and standing in their communities—who desire to expand and share in the profits of the electric refrigeration industry, are invited to study the Norge Franchise.

Norge dealers are prosperous, for they have a selling proposition which is confined to Norge and cannot be duplicated elsewhere.

This sales success has its foundation on Norge exclusive rotary construction which actually compensates for its own wear.

Here is the reason for the lifetime refrigeration and unmatched economy presented by Norge! Here is the reason for its unusual quietness of operation and its absolute reliability and efficiency at all times!



You are cordially invited to write at once for details regarding Norge Franchise selling plan which enables you to build your business progressively and profitably.

Norge Corporation

Silent, Economical Refrigeration
DETROIT MICH.

that they are capable of installation by unskilled labor, and where all reasonable safety requirements are inherent in the construction of the unit, we cannot see where the public interest is served by inspection or tax for such inspection.

"We further call attention to the general inadequacy of the definitions under Classes D to H inclusive and further that nothing is mentioned regarding more than 100 lbs. of refrigerant.

"We take exception to the wording of Class 'C'. Under the wording, our standard household unit of the 10 cubic foot size or larger which has two expansion elements in the one cabinet, would be included. We presume the intention was to specify 'two or more expansion elements' in separate cabinets.

"We call attention to Class 'E' as being covered by our observations on Class 'A'. Approval (P. 3.)

"It is our belief that undue discrimination may be practiced by limiting machines to those submitted to the Underwriter's Laboratories for approval. An alternate specifying conditions, methods of manufacture, etc., should be provided.

"For example, the General Electric unit so far exceeds the Underwriter's requirements in safety that approval is merely a matter of form. To bar such machines, the product of the world's largest electrical manufacturers, because they may not have submitted it to the Underwriter's Laboratories for test, seems unreasonable.

Plans

"We again take exception to Class 'E', when the factory built unit is involved.

Permits

"We take exception to necessity for permit on Class 'A' machine as outlined above.

Inspection

"After eliminating the factory made and assembled individual unit, we can see no reason why inspection should not be made of mechanic's work in the same manner as electrical work, plumbing work, etc., and we interpose no objection.

Ventilation

"Except as covered in our previous comment under Class 'E', we offer no objection. This seems to be in the public interest and for the public good.

"We however call attention to the fact that the inadequacy of definition of Class 'G' makes comment on this item uncertain.

Guards

"We take exception to this as applicable to Class 'A'.

Emergency Switch

"Wording of this section is obviously incomplete. It could not be made applicable to an apartment house with two or more Class 'A' units installed therein, nor can necessity for same be seen in view of the inherent safety characteristics of the individual unit.

"We take exception to the provision of wiring for Class 'A' units other than as now provided by the D. C. Electrical Code.

Electrical Connections

"We agree to this section.

Plumbing Connections

"We agree to this section.

Brine Connections

"We cannot see where any possible hazard can be associated with circulating brine, but for compliance with plumbing regulations, we offer no objections.

Refrigerant Connections and Tests

"Classes 'B', 'C', 'D', 'E' and 'F'. "We are in accord with anything needed to protect the public interest. These proposed regulations as far as we can see are reasonable and we offer no objection. Exception is taken to the inclusion of Class 'E' self-contained units.

Extensions and Repairs

"Apparently this applies to Classes 'B' to 'G', inclusive, but it is not so stated. "We take exception to the application of this section to Class 'A'.

Re-used Apparatus

"We take exception to this as applicable to units removed for causes other than defective operation."

HARRY D. EDWARDS,

30 East Forty-Second Street,

New York.

April 13, 1929.

"Colonel W. B. Ladue, District Building, 14th Street & Pennsylvania Ave., N. W., Washington, D. C.

"Dear Sir:

"I am in receipt of the proposed rules and regulations governing installation of refrigerating machines in the District of Columbia, and in connection therewith I would like to make the following comments:

Classification

"1. You are undoubtedly familiar with the Code being prepared by the American Standards Association, in which a different classification has been established. It would seem to me to be highly desirable that the classification of units be uniform throughout the United States, and that as the Standards Association units are being considered by numerous other municipalities, it would be very desirable for the District of Columbia to conform with the classification, which has received almost universal acceptance after considerable deliberation by all interested parties.

"2. It would seem that a fee should not be charged for installation of an individual unit in a home and that the inspection should be limited to those installations which are an assemblage of parts put together by installation men.

Approval

"3. Your attention is called to the fact that this paragraph applies to all sizes of machines from the smallest units to those of a thousand tons capacity and the Underwriters Laboratories have neither the personnel nor the facilities for approving other than the smallest type of refrigeration units. It is my suggestion that this paragraph require that all units be constructed in accordance with the rules and regulations or recommended practices of the American Standards Association.

"4. It is obviously the intent of the rules and regulations to prevent the escape of refrigerant through untight packing boxes, or through the breakage of refrigerant containing pipes or connections. It would seem that greater safety could be provided by placing the valves leading to the evaporators in individual refrigerators in an accessible position, so that they can be shut off by the owner. With this in view, I would suggest that the latter part of the first paragraph under refrigerant connections be modified to permit the installation of packless valves and their outlet connections outside the gas-tight conduit system.

"In view of the fact that the rules and regulations of the National Board of Fire Underwriters are apparently in an unstable condition, it is suggested that the tests which you desire be specified.

"Yours very truly,

H. D. EDWARDS."

Statement of Mr. Roy E. Smithson, in behalf of Frigidaire Corporation.

Mr. McKenna: Will you state your full name, your employment with the Frigidaire Corporation, and the extent of your experience and what that experience has been?

Mr. Smithson: Roy E. Smithson; Frigidaire Corporation, Dayton, Ohio. Service Manager for the Corporation, ten years; Assistant Manager of Branch Operations for the past year, in charge of branch sales.

Mr. McKenna: Have you reasonable familiarity with the installation of these multiple systems by your company?

Mr. Smithson: In connection with multiple systems, I might say that we have records in some of our branch operations, as well as some of our distributing operations, wherein there are less service difficulties on multiple systems than there are on self-contained units.

Mr. McKenna: Will you proceed to your analysis of the draft of April 11, 1929, taking up first paragraph (A).

What comment, if any, have you to make concerning paragraph (a) on sheet 1?

Mr. Smithson: Sheet 1, paragraph (a) reads: "No refrigerating machine or apparatus for lowering natural temperature, or any unit or part thereof, which contains, circulates, or uses any gas under pressure, or any fluid to be expanded, for refrigeration purposes shall be installed in the District of Columbia without a permit therefor, and inspection and approval before use."

This provision should be amended so as to exclude Class A of the Classification shown on sheet 2 of the proposed code, under "Schedule of Refrigerating Apparatus Requirements," which is as follows: "Class A—Individual units made up of compressor or absorber and expansion element mounted on the same base and containing, circulating or using not more than ten pounds of refrigerant, and generally shipped complete from the factory; such as domestic refrigerators and ice cream cabinets with all apparatus enclosed within the cabinet. Fee \$1.00."

Mr. McKenna: Now that is individual units, is it not?

Mr. Smithson: That is right.

Mr. McKenna: What comment have you to make concerning that?

Mr. Smithson: Paragraph (a) is also objectionable because it requires approval before use. This feature will be hereinafter discussed under "Approval."

Mr. McKenna: Then according to your views of paragraph (a), you want individual units exempt?

Mr. Smithson: That is right.

Mr. McKenna: Pass to paragraph (b) on sheet 1. What comment have you to make concerning that?

Mr. Smithson: Paragraph (b) reads:

"No permit for any such apparatus to be installed in, or connected with, any church, theatre, school, hospital, asylum, or place of public assembly shall be issued unless the application has been especially approved by the Fire Marshal, and such a permit may be issued for installation and temporary operation only, subject to suspension or revocation by the Commissioners twenty-four hours after failure to comply with written notice of a defect or possible hazard by any authority or duty in connection with maintenance."

The expressions "to be installed in, or connected with, any church, theatre, school, hospital, asylum, or place of public assembly" are broad enough to include a boiler house or other outbuilding detached from, yet connected in some manner with a hospital, asylum, school, theatre, or church. The paragraph should be revised so as to apply only to wards of hospitals, asylum dormitories, and class rooms of schools, and should not exclude installations in other parts of hospitals, asylums, etc.

Furthermore it is thought that the authority vested in any inspector to define a "defect or possible hazard" is too broad and may, in some instances, work serious hardship.

Mr. McKenna: What comment concerning paragraph (c) have you to make?

Mr. Smithson: Paragraph (c) reads: "The permit and inspection fee shall be in accordance with a schedule of fees as adopted by the Commissioners from time to time. This permit and inspection fee shall be distinct and separate from permit or inspection fees for building, plumbing, electrical or other work."

This proposed provision covering the permit and installation fee is unnecessary, and, in view of that fact, it should properly be included in either the plumbing inspection fee or the electrical inspection fee and not made the subject of a separate charge.

Mr. McKenna: What have you to say concerning paragraph (d)?

Mr. Smithson: Paragraph (d) reads: "Permits must be obtained before commencing any part of the work of installation, and shall be issued by the Inspector of Buildings after approval of the application by the Inspector of Plumbing (and by the Fire Marshal as provided in paragraph (b) of this regulation) and payment of the required fee to the Collector of Taxes."

As to the provision requiring the procurement of permits before commencing any portion of the work of installation, it is pointed out that this provision, in many cases, would work a hardship by holding up the work. Under it the application must be approved by the Inspector of Plumbing, and the Fire Marshal, and issued by the Inspector of Buildings. All these approvals and inspection services require considerable time in the usual course of business and would often work hardships not warranted by the circumstances. It is obvious that no reputable manufacturer would install a unit which he knows is in violation of existing law. The matter of application and approval is generally a matter of routine.

Even after an application has been made and approved it very often occurs that, due to a change in building plans, the set-up is rearranged, and if we were compelled every time such a change occurs to submit another application and secure another approval it would materially retard not only the installation itself but the further progress of the erection of the building or new apartment. This provision is entirely too inflexible and requires modification along the lines suggested.

A permit should not be required for Class 'A' (shown on sheet 2 of the draft of April 11, 1929.)

Mr. McKenna: What is the reason for that?

Mr. Smithson: Class A, small house owned machines, we feel should not require a permit or fee any more than a vacuum cleaner or any other small piece of apparatus.

Mr. McKenna: Give such comment as you will on paragraph (e).

Mr. Smithson: Paragraph (e) reads: "All refrigerating apparatus and the installation and repair thereof shall be in accordance with 'Schedule of Refrigerating Apparatus Requirements,' as approved by the Commissioners, and kept on file in the office of the Engineer Commissioner."

We have no objection to this paragraph.

Mr. McKenna: So there we are in accord?

Mr. Smithson: Yes, sir.

Mr. McKenna: What have you to say about paragraph (f)?

Mr. Smithson: Paragraph (f) reads: "Any extension of, addition to, or replacement of the major part of any refrigerating apparatus or system, shall be subject to permit and inspection requirements of this regulation."

This paragraph is entirely too drastic and should be stricken out of the code. The words "major part" need defining. What is a "major part" of a refrigerating machine or apparatus? Is it the float valve, the condenser, the coil unit, the door, the hinges, or what? In other words, the paragraph is not clear.

Mr. McKenna: What have you to say about paragraph (g)?

Mr. Smithson: Paragraph (g) reads: "Whenever any part or appurtenance of any refrigerating apparatus or system shall be found leaky or defective or in need of repair, it shall be replaced or repaired in accordance with this Regulation and the Schedule of Refrigerating Apparatus Requirements within forty-eight hours after service of notice from the Inspector of Plumbing (except as provided in paragraph b); and no such defective or leaky refrigerating apparatus or system shall be maintained or operated until such repairs have been made and approved."

The words "part" or "appurtenance" as used in this paragraph should be defined as also should be the words "defective" and "in need of repair."

What is a "defective" refrigerating apparatus may be a question of considerable controversy on the part of two different inspectors.

Likewise the question of when a refrigerating apparatus is "in need of repair" depends entirely upon the viewpoint.

The use of the word "defective" should be explained. For example, the fabric in a belt might split. It would be defective, yet the machine would continue to operate. The handle of one of the ice trays might be broken off, yet it would in no way interfere with the operation of the machine even though the ice tray would be "defective."

Under any of these circumstances the machine or apparatus could not be operated under this proposed paragraph until the repairs had been made and approved, which would mean in many instances a hardship, food spoilage, and other inconveniences on the part of the user.

Mr. McKenna: State what you have to say about paragraph (h) on sheet 2.

Mr. Smithson: Paragraph (h) reads:

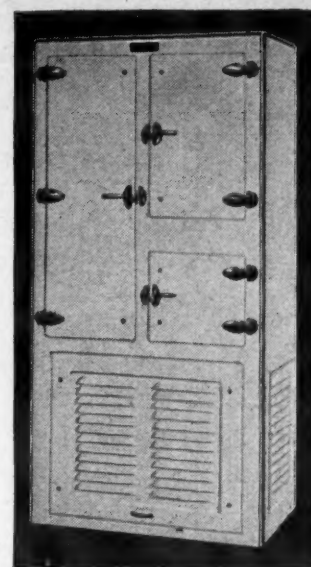
(Continued on Page 16)

A National Acceptance

The gratifying reception that has been accorded the NEW BOHN SANITOR series is undoubtedly due to its low price—but by no means to price alone, for in every detail of its construction BOHN standards have been adhered to rigidly. Here is a super-quality, all-porcelain refrigerator that is as beautiful in appearance as it is efficient in service. Quantity production brings its price within the reach of the majority of families in your community.

These models together with those of the other famous BOHN Lines combine to make a group of refrigerators that answer every requirement in style, size and price.

Our catalog gives complete information and it is yours for the asking.



Nothing finer can be said of a refrigerator than
"It was built by BOHN."

BOHN REFRIGERATOR COMPANY
SAINT PAUL, MINNESOTA

NEW YORK

CHICAGO

BOSTON

Think what it would mean...

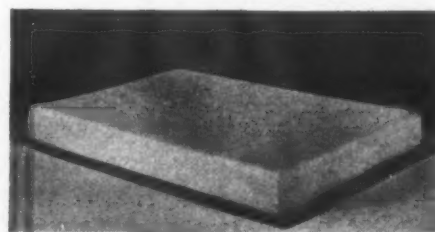


If you could say to your customer
"This is a better refrigerator"...and
could prove it point by point



POINT No. 1

"The running time of this machine has been reduced 15% due to the ideal conditions existing in this Dry-Zero Insulated Refrigerator." Proof: U. S. Bureau of Standards tests show Dry-Zero to be 20% to 40% more efficient in stopping heat than any common commercial insulant. Therefore, less heat enters through the walls and the unit needs to operate less often to remove it.



POINT No. 3

"This Refrigerator will never lose its heat stopping properties." Proof: Dry-Zero is accepted as one of the most permanent insulants in existence. A "50,000 door slam test" had no effect upon the Dry-Zero, which was used as the door insulant. It will not settle... void... or decay.



POINT No. 2

"You will never be bothered with troublesome insulation odors in this Dry-Zero Insulated Refrigerator. Proof: Dry-Zero is absolutely odorless in itself. Its resilient glass-like fibres offer no source of food supply for fungic growth. Dry-Zero will not rot... or otherwise deteriorate during the entire life of the refrigerator."



POINT No. 4

"This Dry-Zero Insulated Refrigerator will last longer, because there is less wear and tear on it." Proof: Refer back to point one. This reduced running time naturally saves the operating mechanism... Less running time, less wear... Greater resistance to heat, more sustained even temperature.

Dry-Zero Corporation
130 S. Wells St., Chicago, Ill.

DRY-ZERO

CODE HEARING

(Continued from Page 15)

"Whenever complaint is made by the Fire Marshal of exposed tubing, unguarded machinery, worn apparatus, lack of ventilation, absence of control switches or any other condition in any refrigerating apparatus or system constituting, in his opinion, a hazard to life or property, the apparatus or system shall be immediately put out of service, and shall not be operated until it is brought into conformity with this Regulation and the Schedule of Refrigerating Apparatus Requirements."

Under this paragraph the Fire Marshal, in his discretion, could make the paragraph retroactive.

Furthermore, the question of what constitutes "worn apparatus" should be more clearly defined. Any apparatus which has been in use for even a short length of time is "worn apparatus." This wear does not necessarily affect its use, yet the fact that it has been worn, regardless of the amount, would be a cause for being put out of service.

Discontinuance of the operation, involving delay in re-establishing the service under the necessary approval, might prove a matter of serious moment in connection with the preservation and proper refrigeration of such commodities as vaccines, babies' milk, etc.

The entire paragraph should be eliminated.

Mr. McKenna: Beginning on sheet 2, under the title "Schedule of Refrigerating Apparatus Requirements" and the subtitle "Classification," and extending down to the middle of page 3 to Class H, certain statements appear. What have you to say concerning them?

Commissioner Ladue: Let me ask a question before we get into that, in regard to paragraph (h).

You notice that that is limited to defects which constitute a hazard to life or property.

Mr. McKenna: We thought that babies' milk improperly cared for constituted a hazard of life.

Commissioner Ladue: Well, you are looking at it from another point of view. What I want to know is if you object to a regulation which permits the Fire Marshal to take action in the case of a defect in apparatus which, in his opinion, constitutes a hazard to life?

Mr. McKenna: That is a question of discretion that I would prefer to withhold an expression on. I will deal a little later with that. Offhand, I would say I would not object, subject to that qualification of an abuse of discretion.

Mr. Daniel: May I ask the expert if he considers that the Fire Marshal is the proper official in whom to rest such discretion? Should it not be vested in someone who is, by reason of his particular work, presumed to know more about refrigeration and refrigerating machinery? It is quite a complicated and scientific apparatus.

Commissioner Ladue: We will be glad to have your views on that, Mr. Smithson.

Mr. Smithson: I think that that should be under the control of a man who thoroughly understands refrigeration and particularly the characteristics of a refrigerating system under certain existing conditions.

Commissioner Ladue: Yes. That sounds reasonable, but who would such a man be in the District Government?

Mr. Smithson: Well, if it fell to the lot of the Fire Marshal, I think the Fire Marshal should be trained on the subject; educated.

Commissioner Ladue: Then if he becomes familiar with the subject he would be as good a man to control it as anybody would be.

Mr. Smithson: I think if he thoroughly understood the apparatus and its operations and the things that can happen under certain conditions, that he might be competent to handle it.

Commissioner Ladue: Does that answer your question, Mr. Daniel?

Mr. Daniel: Partially. May I ask this further question, to clear up what is in my mind: As this particular paragraph seems to enter a new field of governmental activity, in your opinion would it not be better for the Commissioners to provide a new department, properly equipped with experts on this particular subject? In other words, you might just as well have the opinion of the Corporation Counsel. He could construe the wording of the paragraph, but probably would not be familiar with the science of refrigeration. The Fire Marshal probably knows all about fire matters but may not know about refrigeration and is not expected to know. Would it not be better for the Commissioners to appoint an inspector of refrigeration?

Commissioner Ladue: We will consider that suggestion as advanced at the hearing.

Mr. McKenna: Before proceeding with your statement, Mr. Smithson, am I correct in my conclusion that you are not personally acquainted with any of the officials in the city of Washington, and therefore you approach this matter in a purely impersonal way?

Mr. Smithson: That is right.

Commissioner Ladue: Oh, yes, of course.

Mr. McKenna: Please proceed, Mr. Smithson.

Mr. Smithson: The schedule of refrigerating apparatus requirements to which you referred reads as follows:

Classification—Class A

"Individual units made up of compressor or absorber and expansion element mounted on the same base and containing, circulating or using not more than ten pounds of refrigerant, and generally shipped complete from the factory; such as domestic refrigerators and ice cream cabinets with all apparatus enclosed within the cabinet. Fee \$1.00."

Class B

"Extension units made up of compressor or absorber element and expansion element or elements not on the same base or within the same cabinet, and containing, circulating or using not more than twenty pounds of refrigerant; such as ice cream cabinets with separate compressor outside the cabinet; soda fountain equipment, or domestic or market refrigerators, with separate compressor or absorber. Fee \$1.00 for each compressor or absorber element and \$1.00 additional for each expansion element, or connection therefor."

Class C

"Multiple units made up of compressor or absorber element mounted on one base and connected to and with two or more expansion elements, and containing, circulating or using more than twenty pounds but less than fifty pounds of refrigerant; such as domestic refrigerators in apartments, factory cooling units, and similar apparatus. Fee \$1.00 for each compressor or absorber unit and \$1.00 additional for each expansion element, or connection therefor."

Class D

"Same as Class C except the apparatus contains, circulates or uses fifty or more pounds but less than one hundred pounds of refrigerant. Fee \$5.00 for each compressor or absorber element and \$1.00 additional for each expansion element, or connection therefor."

Class E

"Air conditioning and cooling apparatus for single family dwellings. Fee \$10.00."

Class F

"Air conditioning and cooling apparatus for flats, apartment houses, hotels, churches, theatres, schools, hospitals, asylums, halls and places of public assembly. Fee \$25.00."

Class G

"Commercial ice machines in hotels, restaurants, food factories and similar apparatus. Fee \$10.00."

Class H

"Commercial ice machines in ice plants. Fee \$25.00."

Extensions. Fees same as for class. Repairs. Fees \$1.00."

We believe that from the standpoint of classification, in order to determine whether or not fees shall be charged permits should be based on two facts. First, whether or not there has been any work done on the part of any local installation department in setting up this system. If no work has been done, no fee shall be collected because there would be no need of inspection. Under this classification would fall our unit system, which is

One which can be removed either with or separately from the space refrigerated, without disconnecting any refrigerant-containing pipes."

Second, where work has been done on the part of the local installation department then there would have to be inspection. Therefore there should be a fee charged. Under this classification would fall all installations not classified as unit systems.

A fee of \$1.00 should be charged for each system other than the unit system for which no fee should be charged.

In a building of 325 apartments in this city there are 21 systems. Therefore, the charge under this proposal would be \$21.

compared with a charge of \$2 for plumbing inspection of the same building.

Under the proposed code the charge would be based on the installation of 21 compressors, at \$5, per compressor which is \$105, plus \$1 additional fee for each evaporator, making the total \$430.

Mr. McKenna: On sheet 3, under the caption "Approval" appears a certain provision. What comment have you to make with regard to that?

Mr. Smithson: That provision reads:

"Every compressor or absorber element and every expansion element of any refrigerating or cooling apparatus installed in the District of Columbia must be constructed in duplicate of an original or model which has received the approval of the Underwriters Laboratories, and in the case of separate but connected elements, the method of making the connection and the materials used shall have received the said approval and shall be otherwise in accordance with the requirements of this schedule."

The Underwriters Laboratories do not issue an "approval" they merely list it. They have not approved any refrigerating system.

This paragraph is subject to the criticism that it does not take into consideration new manufacturers or new models which have not been inspected or listed by the Underwriters Laboratories. Frequently it takes a year, or over, to get an inspection by the Underwriters Laboratories and the delay in securing the listing of that organization would work a hardship which this proposed code has not taken into consideration.

Commissioner Ladue: Have not Frigidaire units been approved?

Mr. Smithson: They have been tested and listed.

Commissioner Ladue: Has not the Copeland system been approved?

Mr. Smithson: Mr. Muffly probably could answer that better than I can.

Mr. Muffly: Let me clarify that statement a little. We have been in the habit of saying that we have the Underwriters' approval. Distributors and dealers in refrigerating systems use that term rather loosely. If we want to be strictly correct, they do not approve anything. They simply list them. I have been guilty of making that statement myself, that Copeland machines are approved.

Commissioner Ladue: I am afraid we took you seriously.

Mr. Muffly: We all have some kind of a listing by the Underwriters' Laboratories, which we rather loosely have been calling "approval." They list them for the inspection service, and they send their men around to our plants and inspect our processes of manufacture periodically, and those are what are commonly called "approved machines."

Commissioner Ladue: Have you seen this (indicating)?

Mr. Muffly: Oh, yes. We have one of those for each of our types.

Commissioner Ladue: I would take that to be an approval myself.

Mr. Muffly: Is it simply a question of the clear definition of the word, because when you put it up to the Underwriters' Laboratories in black and white they will say "No, we have not approved anything. We listed them as standard equipment."

Mr. Rodda, Chief Engineer of the Underwriters' Association of the District of Columbia:

Regarding the approval of the Underwriters' Laboratories, that listing is not given for any particular machine until the Underwriters' Laboratories consider it safe for operation. Whether it is considered an approval or a listing amounts to the same thing. The Underwriters' Laboratories make a test and do not list them until they consider it safe for operation.

Commissioner Ladue: That, I may say, is what we had in mind. We have no objection to changing it to "listing," if that will meet your approval.

Mr. Williams: I feel that this responsibility of approval on all models by the Underwriters' Laboratories will work a great hardship, for the reason that if a new model is brought out with any material changes, the approval of the old model does not carry to the new one, and there must be considerable lapse of time to get approval of the new model. It will not permit to have it passed under the old listing.

Commissioner Ladue: What is the effect of approval by the Underwriters, or the absence of approval?

Mr. Williams: In some localities inspectors have refused to accept them without such approval. Beyond that I do not know. I do not think it affects the insurance very much. We have been really trying to find out just how far-reaching that approval is. We have not decided that, but if we change our model it has to be approved all over again, and there is great loss of time in doing that.

Commissioner Ladue: Well, I would make this suggestion, that if the Underwriters' Laboratories and the National Board of Fire Underwriters, both of which are bodies of considerable influence and considerable importance, consider this matter to be of sufficient importance to take under their jurisdiction, I do not see why you should raise a question about our taking the advice of those bodies.

Mr. Williams: As I understand these fire insurance interests have no force of law beyond as they might affect the rates of insurance. There is nothing that would compel anybody to get their approval on these things, beyond the matter in which it might affect the insurance rate on a building, for instance.

Commissioner Ladue: But you do do it, do you not?

Mr. Williams: Oh, yes, we do it because it seems to be good business.

Commissioner Ladue: There is an economic law that requires it even if the law does not.

Mr. Williams: Yes. If our people did not do it, some of our sales people who are very enterprising might say, "Well, you cannot put that machine in; it is not approved by the Underwriters." The layman does not know any different, and he will play safe and put in the other machine. That is the way it works out.

Statement of Mr. John E. Starr, Washington, D. C.

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Mr. Starr: This paragraph on page 3 under the heading of "Approval" evidently, in the minds of persons who drew this paragraph, had reference to the small machines. I am representing particularly the larger installations—the large machines—and as I read this paragraph it seems also to cover the large machines. These are large apparatus, spread all over a building, having a large amount of material of various kinds, and are not, I think, specifically approved by the Underwriters' Laboratories except in so far as the whole building must be in accordance with the Underwriters' Laboratories. I do not understand that the Underwriters' Laboratories approve specifically any particular large machine, and even then, I think it would be somewhat of a hardship to oblige a manufacturer to prepare and file a model of a large machine. I think, however, that this approval was intended to relate more particularly to small machines, but I think that some provision ought to be made in there to make it clear as to just what it does apply to.

Commissioner Ladue: Your point would be met by a provision that excluded from this requirement, the large scale ice-making factories.

Mr. Muffly: I think you could roughly say that we fellows making machines under one-half ton capacity generally have them sent to the Underwriters for this so-called approval and listing by the Underwriters. Mr. Starr brings up a point that had not occurred to us, thinking of the smaller sized machines. If a man who manufactures five or ten or twenty-five machines does not send it to the Underwriters, there is no occasion for him to do so. In fact, the Underwriters would not know where to put it if they sent it there.

Mr. Smithson: If it is decided to use the word "approval" in our discussion here, I might say that we gave consideration not only to our smaller apparatus, but also to multiple systems, and they are approved by the Underwriters' Laboratories, and I have the approval of the multiple system in a hotel.

Commissioner Ladue: I think we understand the point.

Mr. McKenna: Mr. Smithson, proceed with your discussion of sheet 3 under the title, "Plans."

Mr. Smithson: Sheet 3 reads:

"PLANS: Complete plans and specifications shall be filed in triplicate for Classes E, F, G and H."

This provision should be eliminated. Its retention in the proposed code means the employment by the agency selling the equipment of a number of draftsmen for the purpose of filing papers, which, it is believed, serves no useful purpose.

Mr. McKenna: Under "Permits" at the bottom of page 3, and the top of page 4, have you any comment to make on that?

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All apparatus furnished and installed and work done in connection with or under any permit issued hereunder must comply fully with all stipulations noted on the application therefor, and all Regulations applying to this work and this Schedule."

I have no comments on that.

Mr. McKenna: You approve that?

Mr. Smithson: Yes, sir.

Commissioner Ladue: Going back to these "Plans," you noted that this requirement for plans only applies to air conditioning and cooling apparatus for single family dwellings, flats, apartment houses, churches and so on, commercial ice machines in hotels and restaurants and commercial ice machines in ice plants. Is it not necessary—I am asking this as a serious question—is it not necessary, when you are going to install anything like an air-conditioning and cooling apparatus or a commercial machine in a hotel or in a large ice plant, that somebody should make plans that you are going to put it up by?

Mr. Smithson: I will answer that in this way, that with reference to the room cooling apparatus, that is made up in a complete cabinet form, with a fan and electrical connection. In that case it would be no different than installing a household unit. In the case of a commercial apparatus or apartment house buildings or multiple systems, there is usually a proposal made up by the sales engineer and presented with the contract at the time the order is taken. We keep a file of those copies. The customer keeps a file and the salesman has a copy.

Commissioner Ladue: Well, that is a plan, is it not?

Mr. Smithson: But no blue-prints are filed.

Commissioner Ladue: We have had plans filed in cases of air conditioning apparatus in large buildings, churches, hotels, etc. Somebody must make the plans.

Mr. Smithson: Those are the larger machines, I imagine.

Commissioner Ladue: Yes. That is the point I am trying to make, that we were talking about the rather large machines, rather than plans for a little household unit that is hooked up like an electric fan. That is the point that we would like to make. But, you would not undertake to give a figure for an air-conditioning or cooling apparatus in a church or theater without having some kind of plans.

Mr. Smithson: Oh, we do not go that far. You are talking about the bigger apparatus.

Commissioner Ladue: Well, that is what this applies to—the bigger apparatus.

Mr. McKenna: Excuse me.

Mr. McKenna: Mr. Smithson, please make such comment as you wish concerning "Inspection" on sheet 4.

Commissioner Ladue: Well, I would make this suggestion, that if the Underwriters' Laboratories and the National Board of Fire Underwriters, both of which are bodies of considerable influence and considerable importance, consider this matter to be of sufficient importance to take under their jurisdiction, I do not see why you should raise a question about our taking the advice of those bodies.

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All apparatus furnished and installed and work done

Commissioner Ladue: Do you want to comment on "permits?"

Mr. McKenna: No comment at all.

Mr. Smithson: With reference to the subject of inspection, which reads as follows:

"The installation of all apparatus and connections shall be inspected by the Inspector of Plumbing. In the case of compressor, absorber or expansion element or other entirely exposed work, the application and permit will serve as notice, but in the case of multiple unit systems, notice must be given so that conduit to be concealed may be inspected before covering in on the work, and again after tubing has been pulled in and connection made but before the junction and valve boxes are sealed, and conduit shall not be covered up, or boxes sealed, until such inspection and approval of the work."

We object to the sealing of valve boxes because the purpose of sealing is to eliminate the possibility of the refrigerant escaping from one floor to another, which can be accomplished by merely sealing the tubing in the conduit where the conduit enters the junction box.

The valve boxes should not be sealed so as to make the valves readily accessible in case of emergency, which is the intended purpose of those valves.

Mr. McKenna: Proceed with "Ventilation" on Section 4.

Mr. Smithson: The paragraph with reference to ventilation reads as follows:

"When any part of the building in which refrigerating apparatus (except Class A and B) is installed is used for human habitation, no compressor, absorber, refrigerant tank or other major apparatus (except an expansion element) shall be located in any room not provided with a suitable window to the outer air, and all doors opening to the habitable parts of the building from such room shall be tight-fitting and self-closing. In the case of classes D, E, F and G, or where two or more Class C systems are located in the same building, the room in which the apparatus is placed must be a room set apart exclusively for refrigerating machinery purposes, and shall have gas-tight walls and, in addition to a suitable window, an open louvered vent to the outer air of not less than one square foot for each fifty pounds of refrigerant contained, used or circulated in the system or systems."

With reference to this paragraph on ventilation, as for the suggestion in this code for an air-tight machinery room. First to locate the machinery in such a way that it will be free from any chance of injury to life or equipment. This can be accomplished by merely building around the machinery an enclosure of wire mesh (as shown by photograph "A").

Mr. McKenna: I will furnish a copy of that as an exhibit, and will leave this for your inspection.

(The photograph referred to was received and filed as Exhibit "A", and is forwarded herewith.)

Mr. Smithson: (Continuing.) The second reason for suggesting an air-tight machinery room is to confine any escaped gas in a space separated from the other parts of the building. This we do not believe necessary, because the section of the building in which the compressors are situated is remote from the inhabited part of the building, whereby eliminating the hazard caused by escaped gas. Furthermore, in our experience covering the installation of thousands of machines we know of no instance where undesirable experiences have resulted from the compressors being located in the open basement rooms.

Mr. McKenna: Where did that photograph, Exhibit A, come from?

Mr. Smithson: From Washington.

Mr. McKenna: It represents an installation in a local apartment house?

Mr. Smithson: Yes, sir.

Mr. McKenna: Please proceed to comment concerning "Guards," at the bottom of sheet 4.

Mr. Smithson: The paragraph reads as follows:

"Heavy wire mesh guards shall be erected around each compressor not located in a separate refrigerating room."

The paragraph relating to guards should be made applicable to multiple installations only and should not be restricted to heavy wire mesh guards.

Commissioner Ladue: What reason do you advance for this suggestion?

Mr. Smithson: Household cabinets, in most instances, have the mechanism enclosed inside of a cabinet. In the case of a remote installation, with a household installation, we already have a guard over the fan pulley and belts, where there is possible chance of injury. That is put on by the manufacturers.

Mr. Williams: I would like to ask if all manufacturers put such guards on all moving parts of their machines.

Mr. Smithson: I am sure I cannot answer for all manufacturers.

Mr. Williams: This is to cover all manufacturers.

Mr. Smithson: I would rather have the other manufacturers answer for themselves.

Commissioner Ladue: You enclosed this installation in a guard?

Mr. Smithson: That is the multiple installation.

Commissioner Ladue: If there had only been one there you would not have put a guard around it?

Mr. Smithson: The small household unit already has a guard on it.

Mr. Muffley: That referred to the number of evaporators in the system, even if there were only one and they were multiple.

If it were attached to a multiplicity of evaporators, say this is a multiple in two sections (indicating): multiple high sides and multiple low sides on each one.

Commissioner Ladue: This is your own installation, put up without any regulations or requirements at all on our part?

Mr. Smithson: That is the installation in Washington, D. C.

Commissioner Ladue: You enclose these compressors with a mesh guard. I don't know whether it would be classed as heavy wire mesh or not, but it is a mesh guard?

Mr. Smithson: That is right.

Commissioner Ladue: There are four of them in there, is that right?

Mr. Smithson: That is right.

Commissioner Ladue: If there had been two of them in there, would you have enclosed it?

Mr. Smithson: We would build around that type of installation also.

Commissioner Ladue: But if there had only been one, you would not?

Mr. Smithson: On a multiple installation in an apartment house, we probably would.

Commissioner Ladue: You would

Mr. Smithson: Yes, sir.

Commissioner Ladue: What are you kicking about?

Mr. Smithson: I am kicking about the single household units; A and G and S, the small compressors.

Commissioner Ladue: Your comment applies only to the small household unit?

Mr. Smithson: To the small household unit.

Mr. McKenna: Mr. Smithson, please comment concerning the emergency switch at the bottom of sheet 4.

Mr. Smithson: The paragraph concerning emergency switch reads:

"In every case where there are two or

more electrically operated compressors in the same building, there shall be provided, adjacent to the main entrance service switch, a conspicuously marked master switch to cut off all compressors in emergency."

To have a set-up such as is advocated under this paragraph would accomplish no good, for, as we understand it, this provision is expected to retard the flow of refrigerant through a leak. Should a leak occur on the low side, the running of the compressor would retard the leak on the low side rather than discontinuing the running of the compressor. On the high side there is always pressure enough, so that the leak would continue even though the compressor stopped.

In addition to the foregoing, a set-up such as this is not practical in the case of unit systems installed in an apartment house, because, in the case of any emergency, the logical place to go is to the apartment affected and not to the basement.

Mr. McKenna: Electrical connections.

Mr. McKenna: Electrical connections reads:

"All electric wiring connections shall be made in accordance with the electric wiring regulations pursuant to permits from the Electrical Department."

There are no objections.

Mr. McKenna: Plumbing connections.

Mr. Smithson: Plumbing connections, on sheet 5, reads:

"All drain, waste, water supply and illuminating gas connections shall be made by a Registered Plumber in accordance with the Plumbing and Gas Fitting Regulations."

No drain from any compressor, absorber or condenser shall be connected directly with any sewer, soil, waste or other plumbing pipe but must discharge over the surface of an open area, over a trapped, vented, and water supplied plumbing fixture, or otherwise as directed by the Inspector of Plumbing."

There are no objections.

Mr. McKenna: Brine connections.

Mr. Smithson: The paragraph reads:

"Pipes for circulating brine or other liquid for indirect refrigeration may be of any suitable material, and may be installed by fitters, but must be inspected by the Inspector of Plumbing."

There are no objections to that.

Mr. McKenna: "Refrigerant Connections, Classes B, C, D, E and F," on Sheet 5.

Mr. Smithson: The section with reference to refrigerant connections (Classes B, C, D, E and F) in the proposed code reads as follows:

Refrigerant Connections: (Classes B, C, D, E and F).

"All connections between compressor or absorber and expansion elements connected therewith shall be made of seamless drawn copper tubing of not less weight than standard pipe gauge, and extra heavy recessed sleeve pattern cast or forged non-ferrous fittings with each screw thread brazed or sweated in place; or of standard ammonia and brine piping construction; or seamless drawn copper tubing of not less than 34/1000 of an inch wall thickness, may be used with S. A. E. tool flared joints or equal, provided the tubing is enclosed in a 1 1/4", or larger, standard Underwriters' rigid or gas-tight flexible conduit, and all connections or valves are enclosed in gas-tight steel junction or valve boxes."

"The conduit must be continuous with gas-tight joints between sections, from a point within three feet of a compressor or absorber, to a pull box, valve box, or refrigerator casing, and from box to box or from box to casing, and all openings from or into conduit shall be bushed with a rounded bushing to prevent injury to tubing. All valve or pull boxes shall be made effectively gas-tight. Copper tubing must be continuous from box to box or from box to casing, and no joint shall be made and pulled into conduit. Conduit and boxes must be securely fastened in place."

"In all cases where two or more expansion elements are connected to the same riser line, connections shall be made through valves for each unit and not to branch connectors. A rigid conduit of the same size shall extend above the highest tubing connection box and shall terminate above the roof with a suitable ventilating device."

"The expansion element shall be located in a refrigerator or other suitable casing which must be firmly fastened to the floor or wall in a permanent manner before the tubing connection to the expansion element is made, and such connection shall be made inside the casing, the tubing therein properly protected, and the conduit entrance sealed."

Mr. McKenna: Now, what you are about to read is a substitution for what appears under "Refrigerant Connections" on sheet 5?

Mr. Smithson: Yes, sir.

Mr. McKenna: Now proceed.

Mr. Smithson: (Reading:)

Refrigerant Connections: (Classes B, C, D, E and F).

"All connection lines between compressor or absorber and expansion elements connected therewith shall be made with standard pipe for refrigerant requiring test pressures of 300 gauge pounds or less, and extra heavy pipe for test pressures in excess of 300 gauge pounds. Or for pressures not in excess of 180 gauge pounds, tubing may be made with seamless metal tubing of not less than .034 of an inch wall thickness for diameter not exceeding five-eighths of an inch and of corresponding greater wall thickness for larger diameters. Where this method is employed for multiple systems tubing shall be protected from mechanical injury as follows:

"From valve manifold box near compressor shall be installed in iron or steel pipe, or other metal flexible enclosures tubing not less than 1 1/4 inches in diameter, or wiremold conduit or its equal, with suitable metal boxes arranged with a door for valves, manifolds, tees or cross connections between compressor and refrigerated cabinets or spaces. (This does not require valves on compressors or evaporator to be enclosed in metal boxes.) Each run of enclosure tubing shall be sealed or plugged at each junction box inlet with a material not affected by moisture or the temperature of the refrigerant line. Enclosures tubing or conduit shall be rigidly secured to the walls or other supports. Valves and fittings shall be rigidly secured in the metal boxes."

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"(b) Shut-off valves shall be installed at the following locations: At each service outlet in pressure and return lines, and in each riser or manifold connection at or near the compressor. These valves shall be fitted with a hand wheel or other means of ready operation as an integral part thereof."

"(c) Valves in service connections shall be located outside of refrigerating unit and at such distance above the floor as will provide ready accessibility."

"(d) Shut-off valves shall be installed in both connections to every evaporator in such a manner as to permit the removal of the evaporator with valves attached."

Service Connections

"(a) Not more than a single tenant shall be supplied from an outlet box on a main riser. Such outlet box shall be located within the premises of the tenant served and so arranged as to be accessible at all times."

"(b) No outlet or junction box shall be permitted in any hallway, stairway, or vertical shaft not cut off at each story. Elevator, dumbwaiter or other shafts containing moving objects shall not be used for outlet or junction boxes, nor for tubing or piping carrying refrigerant."

"Every refrigerator shall be rigidly secured in place."

Commissioner Ladue: That is essentially the Fire Underwriters' code?

Mr. Smithson: Yes.

Mr. McKenna: On sheet 6 there is a paragraph concerning "tests." Will you read that and make such comment as you wish.

Mr. Smithson: This paragraph reads:

Tests

"On completion of installation of any refrigerating systems of classes B, C, D, E, F, G, it shall not be put into service operation until the entire system is placed under test specified by the National Board of Fire Underwriters' to the satisfaction of the Inspector of Plumbing, and approved."

This paragraph is approved with the single exception that Class B should be eliminated."

Commissioner Ladue: That is ice cream cabinets and such like?

Mr. Smithson: Yes, sir.

Mr. McKenna: Now, concerning "Extensions and Repairs" shown on sheet 6, please make what comments you have?

Mr. Smithson: This paragraph reads:

Extensions and Repairs

"All extensions and repairs shall be in accordance with the requirements of this schedule."

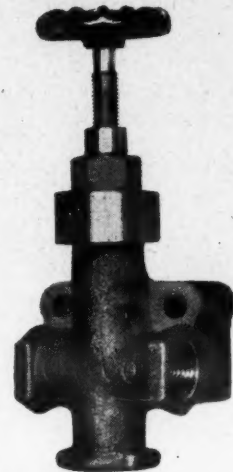
"In case of replacement of a compressor or absorber element which is not located in accordance with the ventilation require-

(Continued on Page 18)

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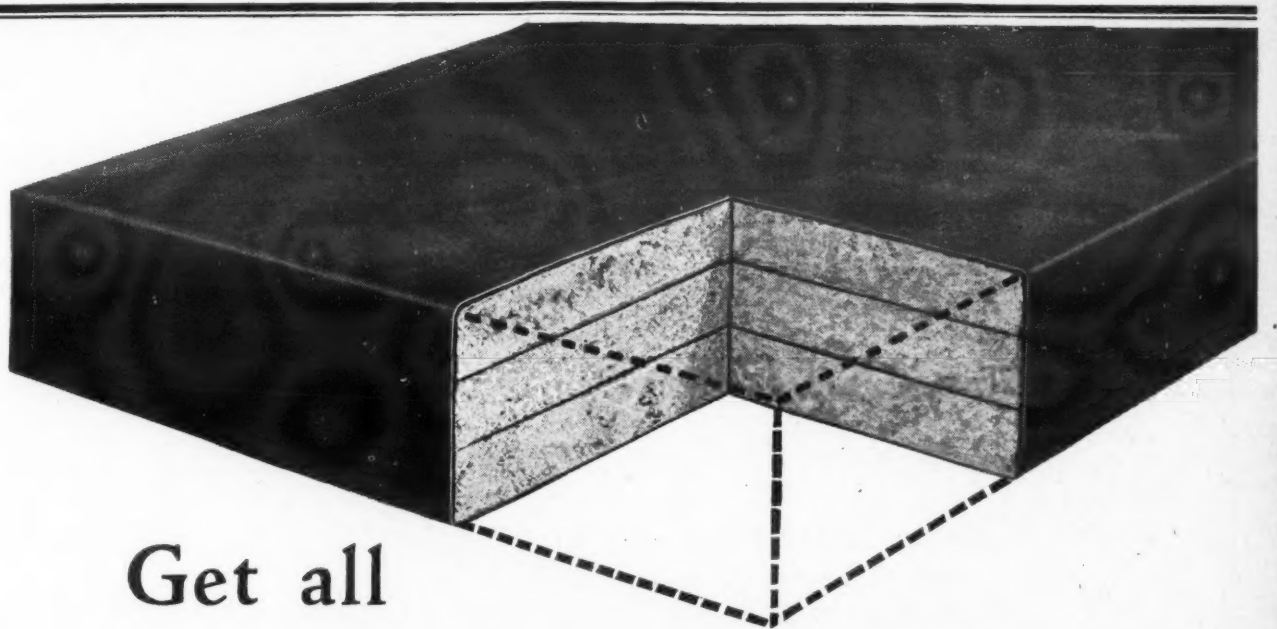
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CODE HEARING

(Continued from Page 17)

ments of this schedule, it shall be relocated in compliance with these requirements."

No objection is made to "extensions" only being in accord with the requirements of this schedule, but the word "repairs" should be eliminated and left to the discretion of the customer, free of permits.

The effect of the second paragraph is to give retroactive application to this code, and places an unwarranted and undue burden upon the customer, manufacturer or agent.

Mr. McKenna: The last provision on sheet 6 relates to re-used apparatus. State your views concerning that provision, will you?

Mr. Smithson: This provision reads as follows:

Re-Used Apparatus

"Used apparatus, other than expansion elements, may be re-installed if in good condition."

"Expansion elements removed, must be factory tested and accompanied by a certificate before they can be re-installed."

"Old copper tubing shall not be re-used."

No objection is interposed to testing removed expansion elements, but we feel that the certificate of a factory branch or a factory representative should be accepted.

Mr. McKenna: Would you mind elaborating on that just very briefly, as to why you take that attitude?

Mr. Smithson: In making reference to the cooling unit itself in the household cabinet, there have been times when the help about a house has driven an ice pick through the coils, thereby causing a leak. We do not claim to be 100 per cent perfect in manufacture, and it is possible that a leak might occur from some other cause. We have established service stations in the territory, and our policy has been to take such coils into those service stations and make the necessary repairs, thoroughly clean the coils, recharge, and use them over. If we were compelled to send those back to the factory and have factory approval put on such coils, we are only building up a lot of transportation expense, and in my opinion a lot of unnecessary expense, aside from the delay in shipping the material back and forth to the factory.

Commissioner Ladue: Your point would be met by inserting the provision to construct an established service station as being competent to handle this retesting?

Mr. Smithson: Yes, sir.

Commissioner Ladue: You do not object to the retesting or certificate of retesting?

Mr. Smithson: No, sir.

Commissioner Ladue: But only to the apparent requirement of sending these to the factory?

Mr. Smithson: Where the work could be done locally?

Commissioner Ladue: In case of an apparatus installed in a place where there is no local service station, how would you meet that situation?

Mr. Smithson: Speaking purely from our own standpoint.

Commissioner Ladue: Of course, that is perhaps unnecessary to talk about here, because there is a local service station. We will pass that.

Mr. McKenna: That might not apply to everyone.

Commissioner Ladue: Yes.

Mr. McKenna: That could be solved by taking the branch nearest by, instead of sending, as in our case, to Dayton or Detroit, to take advantage of the lowest cost.

Now, Mr. Smithson, you have offered your views concerning this proposed code to the Commission, and you have agreed in some instances with them, in some you have slightly differed, and in others there was marked divergence from their views. Have you any constructive plan or code or method of handling this situation, to offer at this time?

Mr. Smithson: In answer to that I should say that the code that has been written by the National Board of Fire Underwriters through the assistance of the Underwriters' Laboratories and various refrigerating engineers representing different companies, we have a code covering multiple systems that in our opinion is rather drastic, and yet it is serving the purpose well, because where we have followed this code we have experienced no difficulty from installations. In the District of Columbia we have any number of installations that have been made according to this code, and we think that that code should be adopted in place of the other code, especially so since we are already doing work in the District of Columbia on that basis, and since the work apparently is entirely satisfactory from an operating standpoint.

Commissioner Ladue: There are not many marked differences, are there? When you refer to the Fire Underwriters' code December 1, 1928?

Mr. Smithson: Yes, sir.

Commissioner Ladue: There are not any very marked differences between the requirements of those two codes, are there? Indeed, in some respects it seems to me that the Fire Underwriters' code was a little more rigid than ours.

Mr. Smithson: I think this is much more rigid than the National Underwriters' code.

Mr. McKenna: It is my intention to ask that I be given permission, on behalf of the companies that I represent, to file a brief based on the stenographic transcript, and if that brief, if you will be good enough to grant me a week or two to file it, I will be glad to point out to you wherein your proposed code differs from the code of the Fire Underwriters.

Commissioner Ladue: Will you also take the pains to point out where it is more restrictive and where it is less so?

Mr. McKenna: I shall be glad to do so.

Commissioner Ladue: Will two weeks be sufficient?

Mr. McKenna: I think so, yes, sir.

Commissioner Ladue: Very well. We will be very glad to have it.

Mr. McKenna: Unless there are some questions, that is all I have to offer.

Commissioner Ladue: Is there anyone else who desires to be heard?

Statement of Mr. E. T. Williams, New York City, Representing Servel, Incorporated.

Mr. Williams: If we are to consider the adoption of some other code rather than form one ourselves, I would recommend that the so-called National Code of the American Standards Association be considered.

That is a code that was drafted by a committee which represents practically every interest that is affected by refrigeration. It is a code upon which years were spent in developing and bringing it to its present degree of perfection. It is a broad code. It covers the whole subject.

For the information of those that may not be familiar with the formation of that committee, I would like to read some of

the organizations that are represented on it.

The American Association of Ice and Refrigeration.

American Chemical Society.

American Gas Association.

American Institute of Electrical Engineers.

American Society of Refrigerating Engineers.

American Society of Heating and Ventilating Engineers.

American Society of Mechanical Engineers.

American Society of Refrigerating Engineers.

American Warehouseman's Association.

Association of Governmental Officials.

Compressed Gas Manufacturers Association.

Eastern Ice Manufacturers Association.

Electrical Power Club.

Electric Refrigeration Council.

That Council, when the representatives were appointed, was not in existence, but the former membership was consulted on nominations for representation of the machine industry—household section. They were all approved unanimously.

International Acetylene Association.

International Association of Industrial Accident Boards and Commissions.

Interstate Commerce Commission.

National Association of Ice Industries.

National Association of Practical Refrigerating Engineers.

National Bureau of Casualty and Surety Underwriters.

National Fire Protection.

National Safety Council.

New York Board of Fire Underwriters.

New York City Bureau of Fire Prevention.

Refrigerating Machinery Manufacturers Association.

Underwriters' Laboratories.

United States Bureau of Standards, Department of Labor.

They have worked up this code after a great deal of labor, and my thought is that this code should not be disregarded or thrown away.

The code which the underwriters prepared—I think the first meeting was held in July last year, and it came down to a finished code in December. It is very incomplete. It does not cover the subject, and if you are going to have a complete code my recommendation is that you use the work of the wonderful committee that has been on it and that has been working on it so long.

Commissioner Ladue: You are referring to this code (indicating)?

Mr. Williams: Yes, sir. Now last year, when we had a meeting down here there was a resolution passed, as I remember it, that we confine ourselves to a code on multiple systems. This so-called National Code does cover multiple systems, and it seems to me it would be in order to confine the present work of this Commission, awaiting final approval of the A. S. A. on their code—it is about ready to be submitted to their council of some sixty-two members, I believe. It has already been passed by the sectional committee and the Council of the American Society of Refrigerating Engineers, the sponsor body. It is in its last stage, in other words, for issue. I think it would be to the advantage of everybody to wait until that comes out and then adopt it. I make that plea in the interest of uniformity. If we have a little code down here and another one in Baltimore and another one somewhere else, we have to build special machines or special features on machines to meet those various codes. This particular code does not even use the same terminology that is used, not only in the A. S. A. code but the New York code. They have a different classification, and we will be in hopeless confusion. It will be a serious blow, it seems to me, if we have a lot of codes that do not bear some similarity to each other, in interpreting and evolving them. There are features of this code that I would like to speak of.

Commissioner Ladue: May I interrupt just a moment to get this clear for the record? Are you referring to the code entitled "American Standards Association, American Standards & Safety Code for mechanical refrigeration, sponsored by the American Society of Refrigerating Engineers, approved September 13, 1928, and approved reaffirmed on December 7, 1928?"

Mr. Williams: Yes, sir.

Commissioner Ladue: That is the code you are referring to?

Mr. Williams: That is the code I am talking about.

Commissioner Ladue: But as I understand you, it is in process of some revision and amendment?

Mr. Williams: No. In its present stage, as to its terms and provisions it is finished. They will not be further considered.

Commissioner Ladue: As it stands now?

Mr. Williams: As it stands now. It is simply a question—I was going to say a question of politics, but probably that is not the word of whether it is a good thing to put out. That was put up to this Council. Of course it has to go through the steering committee first, and if they say it should be put out to this membership or the Executive Council, then if they approve it it is the recommended practice of the A. S. A. Of course, it has no force of law, but it is put out as a basis for laws and ordinances on these subjects.

Commissioner Ladue: Will the manufacturers follow this code of their own free will?

Mr. Williams: The Committee membership—I think there are in the neighborhood of 40 members on this committee, and the last vote on that code was something over 90 per cent in favor of it, representing all interests. That was a very representative vote on that code, I believe.

Commissioner Ladue: Can you point out to me, either now or perhaps better later by memorandum or brief or statement wherein this code differs from our proposed code and wherein it differs from the Fire Underwriters' code, essentially? Of course, there are differences in language, but I mean essential differences that would really control the installation.

Mr. Williams: I am afraid I cannot do that personally within the next two weeks, because I am very much occupied for the next two or three weeks, and I will not be home for three weeks, but I think I could arrange to have it done.

Commissioner Ladue: Do you consider that there is a material difference between these three codes?

Mr. Williams: Oh, I think there is a very great difference.

Mr. McKenna: I will undertake to do that for you, Mr. Commissioner.

Commissioner Ladue: Perhaps Mr. Williams will not agree to your statement.

Mr. Williams: I will send a copy of my brief to Mr. Williams.

Mr. Williams: If you could do that it would help me. I am loaded up for the next three weeks.

Mr. McKenna: Fortunately I have not much to do.

Mr. Williams: Now, there is one thing I want to bring up and that is on this matter of connections particularly.

Mr. Smithson: Before you leave the other subject, could I answer briefly?

Mr. Williams: Yes, sir.

Mr. Smithson: I would like to say that as far as we are concerned, we are certainly in accord with the adoption of a

national code of some kind, that could become effective all over the country, and as to this National Safety Code that was referred to, we are certainly in accord with the adoption of that code, provided the multiple systems are included.

Mr. McKenna: You would prefer the provision in the Fire Underwriters' code? Mr. Smithson: I would prefer the provision as written in the Fire Underwriters' code, because they have made quite a study of it.

Commissioner Ladue: Mr. Williams, do I understand you or does Mr. Smithson understand you correctly to say that this code does not cover multiple systems?

Mr. Williams: There was a resolution in the executive council of the Standard Code, when that code was approved, I think put in at the request of one or more of the companies which I represented here, that they would undertake the drafting of a code on multiple systems. I think Mr. Edwards is here and I think he could enlighten us on just what did happen there. That is in the present draft, as I understand it, and I think we would approve that act with that provision in there. I think it has been put in.

Commissioner Ladue: Has Mr. Williams answered your question, Mr. Smithson?

Mr. Smithson: Yes, sir.

Mr. Williams: I would like to speak on this requirement of multiple systems where the copper tube has to be included in inch and a quarter or larger conduits.

The Company I represent, Servel, has been working for some time on a multiple system that will provide the maximum possible safety obtainable in such a system. In that system the liquid line, which is regarded, I think, by everybody as the dangerous line, is enclosed throughout in a suction line, so that should a leak occur in the liquid line it does not escape to the outer air, but into the suction line, which, being connected to the suction inlet compressor, may be readily pumped out.

For the information of the Commissioners, I had our company send out a board fitted up with this system, and I would like to have it where those present can see it. It is not in the way of advertising or anything of that sort, but I think it would be of interest to everybody here.

Commissioner Ladue: Have you got it there?

Mr. Williams: Yes. I have a few prints here, that perhaps our friends would like to look at. I will file this for the record as Exhibit B.

(The prints and statement referred to were received and filed as Exhibit B and the same is forwarded herewith.)

(At this point Mr. Williams demonstrated and explained the model system on board, to which reference has been made, and which, at the suggestion of the Commissioner, was not reported.)

Commissioner Ladue: This is something that is new to us, is it not?

Mr. Williams: No, sir.

Commissioner Ladue: But that outside pipe is heavy or extra heavy pipe?

Mr. Williams: Yes, sir. That is the standard pipe for a low pressure system and a high pressure system.

Commissioner Ladue: And your tube is enclosed in a pipe?

Mr. Williams: Yes, sir.

Commissioner Ladue: Would there be anything in our regulations, as drafted, that would interfere with that?

Mr. Williams: You require inch and a quarter pipe. Three-quarter inch is all that is necessary.

Commissioner Ladue: Your point is that under our code you could not put this in because we require a larger pipe?

Mr. Williams: You require an inch and a quarter pipe for the copper tube, enclosed. The copper tube must be included in the minimum inch and a quarter.

Mr. Ladue: We will make a note of that point.

Mr. Smithson: Might I ask a question? Do I take it that this is designed for a standard stock installation?

Mr. Williams: Yes. That is, it is fittings to be put into a multiple system.

Mr. McKenna: Is that a special machine or is that your regular stock run of installation—the exhibit that you have before you?

Mr. Williams: This is in process of development. It has not come out yet. If we put out any multiple systems we will probably want to put this one out, but if anybody wants to put it out, we will be glad to have them put it out. The idea is to find, as far as possible, a way of putting this in where we do not have that enclosed in a conduit running up through a building, interconnecting through various apartments is the safest way. We think that conduit provides a fue which permits the distribution of refrigeration that might escape into any and all apartments to which it is connected. It is to get away from that that this was worked out.

Mr. McKenna: Is that view universally accepted by refrigerating engineers?

Mr. Williams: I do not know what is accepted universally by refrigerating engineers. That is my opinion and the opinion of quite a number.

Mr. McKenna: But you do not know the general view of the profession?

Mr. Williams: I have seen great diversity of views among refrigerating engineers on these safety codes.

Mr. McKenna: Then there is likelihood that you are wrong in your opinion.

Mr. Williams: Sometimes their view today is not their view of tomorrow.

Mr. Smithson: I take it that the copper tube inside the liquid line, and the outside is the suction line?

Mr. Williams: Yes, sir.

Mr. Smithson: Then you are adding about a million possibilities for leaks by all connections and joints and gaskets that go into it to make up the system, aside from using a cast iron box of a certain finish, that are not sold on the open market?

Mr. Williams: This does not happen to be cast iron. They are cast steel.

Commissioner Ladue: I think I will have to interrupt this discussion. We are getting into a discussion of a particular piece of apparatus, which I think we had better leave out of the picture. We want to go ahead with a discussion of the general regulations. We are very much interested in this, Mr. Williams, but I do not know that we care to pursue it to its ultimate detail.

Is there anything else you wanted to say, Mr. Williams, about our regulations?

Mr. Williams: I have submitted my comments in writing. I have no objection to others seeing them. I have a copy here if you would like to have it read.

Mr. S. B. Carpenter: I would like to ask Mr. Smithson if he knows the conditions under which the Underwriters' code was drawn, and is quite familiar with the procedure under which it was drawn?

Mr. Smithson: The National Code covering multiple systems by the Board of Fire Underwriters?

Mr. McKenna: I think I will have to object to that, because it speaks for itself. It is an adopted code. It has been approved, and we approve it, and regardless of the preliminary discussion entering into it, there is a finished product that we subscribe to.

Commissioner Ladue: Do you subscribe

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to this 'Underwriters' code, or did you have any say about it?

Mr. Carpenter: No, we do not subscribe to it as yet, because we have just heard of it lately, and we want to look into the system and find out how it was drawn. I just asked the question if the gentleman knew.

Commissioner Ladue: I would suggest that you ask that of the Underwriters people sometime.

Mr. Carpenter: The point I wanted to bring out was that the large machine manufacturers, I do not think, have ever been called in in any way in consultation in the drafting of that code.

Commissioner Ladue: I do not undertake to defend the Underwriters. I think they can take care of themselves. I suggest that you take that up with them. Is there anything else?

Statement of Mr. Harry E. Edwards, Representing Compressed Gas Manufacturers' Association.

Mr. Edwards: I represent the Compressed Gas Manufacturers' Association and one of the larger users of refrigeration throughout the country.

I sent you on April 13th a suggested criticism or changes in this District of Columbia code. I understand that these suggestions are to become a part of the minutes of this meeting. Is that correct?

Commissioner Ladue: Yes, sir.

Mr. Edwards: I would like to emphasize the first point which is made in this suggestion, regarding classification.

I think it would be highly desirable that the A. S. A. classification of refrigeration be allowed. Otherwise, as Mr. Williams has said, we will have considerable difficulty in the manufacturers meeting all of the particular specifications.

The second criticism is that a fee should not be charged against the small machine. That is a point that has been brought out by Mr. Smithson.

The particular objection, as stated in this code, I would like to read what I have said:

Your attention is called to the fact that this paragraph applies to all sizes of machines from the smallest units to those of a thousand tons capacity, and the Underwriters' Laboratories have neither the personnel nor the facilities for approving other than the smallest type of refrigeration units. It is my suggestion that this paragraph require that all units be constructed in accordance with the rules and regulations or recommended practices of the American Standard Association."

I would like to add to that. Those rules will cover everything in connection with the requirements.

The next suggestion I make is that the valves leading to individual evaporators do not be enclosed, and that the packless valve be used, the same as this model that Mr. Williams has just shown.

The rules and regulations of the National Board of Fire Underwriters do not seem to be established by any means at the present time. They are in process of revision, and only should be consulted in that manner.

We feel if you are going to specify in the District of Columbia any tests, that you should specify what they are, rather than refer to the regulations of the National Board.

In view of the fact that these letters which have been submitted become a part of this official testimony, I would like to ask Mr. Smithson's testimony be open to others for the same perusal.

Mr. Williams has raised the question about the American Standards Association code and what is to be done. It is hoped that sufficient crystallization of opinion will come out of these proceedings and other things that have been started so that the fourth section, covering multiple installation, can be approved very shortly. I think that when that is drafted, the entire code will be complete, and it will be only necessary for municipalities to add these provisions covering permits, and so forth.

Commissioner Ladue: May I ask you a question and Mr. Carpenter also? Can the manufacturers afford to disregard the Underwriters' code?

Mr. Edwards: The manufacturers I cannot speak for. I can only speak for the users. I do not represent the users of the small multiple installations. Speaking from the user's standpoint, I think that all and more of the provisions of the Underwriters' code are now incorporated in the American Standards Association code. The American Standards Association have developed in their codes all the requirements for fitting, piping, etc., for different pressures, a very much wider and broader code covering a field that this little discussion has not touched, and these rules can well apply.

Mr. Carpenter: The manufacturers cannot afford to overlook the Underwriters' code, but neither can they afford to accept a code which is called the Underwriters' code, or a code which is called a code which they believe is not fit to be called a code. The Underwriters' code, which is published now, is absolutely loose; is absolutely unfair in many ways, and is subject to so many interpretations as to make it unqualified as a code.

I also would like to say that since you have mentioned the Underwriters' code, in your code here, undoubtedly assuming that it was something that should be followed because the Underwriters got it out, since that has been mentioned, that it is a subject which should properly be discussed, and should not be tabled by the statement that we must take it up with them, and that they can defend their own code, because it is my personal opinion, and I represent the large manufacturers—that code is not properly drawn in any way, shape or manner. That is my own opinion of course.

Commissioner Ladue: My reason for desiring to limit the discussion of that point is simply this. We are here this morning to discuss the proposed code which the District of Columbia is considering adopting. I think the Underwriters' code has been brought into the discussion, but after all, that is not the code we are discussing this morning.

Mr. Carpenter: Except that you have made it a part of your code.

Commissioner Ladue: Well, yes. It is referred to in our code.

Mr. Carpenter: That code has not been drawn with any degree of study on the part of the large manufacturers or industries as a whole. It is biased to the extreme.

Commissioner Ladue: That may be, and still it is the code of the Fire Underwriters, and you say yourself that the manufacturers cannot afford to disregard it. I think we could hardly afford to disregard it either.

Mr. Carpenter: We could not afford to disregard it, but, we could not afford to accept it either.

Commissioner Ladue: Are there any others who desire to be heard?

Statement of Mr. Rufus J. Lusk, Washington, D. C., representing Operative Builders' Association.

Mr. Lusk: I represent the Operative Builders' Association. Of course, this is too technical for me to understand very well, but last year we had this same thing under consideration and a code was drawn up in reference to multiple systems only, as has been stated here.

We have this code which has resulted in a great deal of study, and it seems to me that something should be done on this code, what you have got here before you, and not keep putting this thing off and waiting for about forty different engineering societies to try to make up their minds. We have something in front of us. We and the people who buy these machines and who are sort of in between the upper and nether millstones of the General Electric Company and Frigidaire, naturally have a certain interest in this thing. You may smile, but that is all this is. This is merely a case of multiple against individual installation. We certainly want to see a code as much as anybody else. I cannot understand these dollars and cents in here, and I absolutely agree that it is almost ridiculous that the individual householder should have to pay another dollar to have an inspection made of a plug already put in there for which there has been a fee paid. Mr. Smithson well pointed out to you might as well have a fee for a washing machine or a vacuum cleaner which you are going to plug in, and pay a dollar for that.

He also pointed out how high this would be for a comparatively small amount of inspection for a large apartment. We think that the Commission can well consider that these fees will mount up far more than the work is worth.

I want to ask Mr. Smithson a question with regard to page 5 under "Refrigeration connections." As I understand it, he suggested a complete change in that whole section. In the last two lines of the first paragraph on refrigeration connections it says: "Provided the tubing is enclosed in a 1 1/4-inch or larger Standard Underwriters' rigid or gas-tight flexible conduit." Is this gas-tight flexible conduit something that is really available or that you know about?

Mr. Smithson: I would say that our engineers have never heard of such a thing.

Mr. Lusk: Would you mind asking the other engineers here present where that material can be purchased, which we may have to use, under this code?

Mr. Smithson: I should like to know very much where the gas-tight flexible conduit can be obtained?

Commissioner Ladue: You advocate the Underwriters' code.

Mr. Smithson: Yes, sir.

Mr. Lusk: You see my point, Mr. Commissioner. It is the fact that we may have to use the under certain circumstances, and we cannot buy it, are we not put in a rather difficult position?

Mr. Smithson: I think I know what your point is, Mr. Chairman. The National Board code specifies the use of flexible material, either of the exhaust type or the conduit type, but it does not specify "gas-tight flexible material." That is a phrase that we have never heard of.

Commissioner Ladue: Is that what you object to?

Mr. Smithson: Yes, sir.

Mr. Lusk: I would like to ask another question of Mr. Smithson. It says here "that this rigid pipe shall be gas-tight," for example. Would you mind telling me what is the primary purpose of a rigid pipe in which the copper tube is placed?

Mr. Smithson: I will be glad to answer that in this way: The tube that we use is tested and is made of such strength to more than carry any pressures that operate under normal operations. Consequently, as long as that tube is gas-tight that is all that is necessary for the lines. The other tube that is put on over the outside is put on purely as a protection to the copper tube, so that in case the fire department were called into an apartment house building, if they did any chopping through the walls they would not cut the copper tubing in two and thereby permit the gas to go out and drive them out of the building, which would hinder them from fighting the fire. So, therefore, we do not feel that the outside enclosure should be gas-tight, because the gas line itself is gas-tight.

Mr. Lusk: If the firemen were able to chop through, and I suppose they are—this outside tubing, this outside casing, assuming that were gas-tight, would they not be apt to chop through the tube also?

Mr. Smithson: Absolutely, but I do not see how anyone could chop through an iron pipe with an ordinary axe.

Mr. Lusk: Is not this provision somewhat similar to having your gas stove pipe inside of another gas proof pipe?

Mr. Smithson: It leads up to the point where you might make a comparison like this: That illuminating gas should be run into a house in a one-inch pipe enclosed inside of an inch and a half pipe; a double pipe.

Mr. Lusk: That is the point I wanted to make.

Commissioner Ladue: I might add to Mr. Smithson's suggestion that the exposed copper tubing of small size and relatively light material running from the basement to the upper floor of an apartment house is subject to other dangers of breakage than would be involved in an attack by a fireman's axe in case of a fire.

Mr. Smithson: It is our feeling that where the tubing runs from the compressor up to the first riser, that is protected from injury. From the riser up to the building we would be unable to pull our copper tubing through the pipe, so that it must run all the way through to the outlet.

Commissioner Ladue: You believe in installing this copper tubing inside of another pipe?

Mr. Smithson: Yes, sir.

Commissioner Ladue: But you object to its being gas-tight?

Mr. Smithson: We object to its being gas-tight.

Mr. Williams: Mr. Commissioner, it has been suggested that we do something here today in the way of adopting this code and not wait for 40 engineers to make up their minds. I want to say right here that 40 members of that committee have made up their minds and have voted on it definitely. What this committee does down here in Washington at the seat of government is very important in this matter. Unquestionably a great many localities will adopt it, thinking no doubt that at the seat of government they are all-wise and have adopted the right thing, but it will only confuse the whole situation by having a conglomeration of codes rather than uniformity, which is exceedingly important, as I suggested before.

Commissioner: Is there anyone else to be heard?

Statement of Mr. A. H. Baer, representing Refrigerating Machinery Association.

Mr. Baer: My name is A. H. Baer, representing the Refrigerating Machinery Association, an association which comprises in its membership at least 90 per cent of all the production of machines, other than the low pressure machines, used in the household multiple systems.

I would like to call attention to the fact that the Underwriters' code refers only to multiple systems. It does not seem to make any provision for machines other than these low pressure machines that are in use in households and in apartment houses. We, in our business, have never been able to build a plant along those lines, and we could not do so in Washington or any other city.

I would like to recommend that the application of the Underwriters' code, as it is to be incorporated in this code, be defined more closely so that its meaning will be entirely clear, and it will not be read as applying to the multiple plants.

Your code makes use of the provisions of it to cover all plants. That is, your code shall cover all plants, and you incorporate parts of the Underwriters' code in your code. We could not install the average type of refrigerator plant that the members of our Association build, and we have been building them for over 40 years—we could not install them in accordance with the Underwriters' code. It is established only for a low pressure plant.

We are strongly in favor of a code. We have been trying very hard to aid in the formulation of the American Standard Association's code. While there are points in that code that are rather strict, in our opinion, yet we have agreed to it, and we are ready to follow it.

That answers the question which was brought out a little while ago. I can say, because I am the representative on that committee of the Refrigerating Machinery Association. We have had the opinion of all of the members. We will follow the American Standards Association's code and we will also do our utmost to follow your code. We are strongly in favor of a code. We hope it can be made uniform all over the country, because we naturally cannot live on the number of machines that we sell alone in Washington.

Commissioner Ladue: Are there any other features of this proposed code of ours that are inconsistent with the position that you are taking?

Mr. Baer: There is one feature, that is the approval by the Underwriters. As I understand the function of the Underwriters' laboratory, it would be impossible for them to approve a model of our plant.

(Continued on Page 20)

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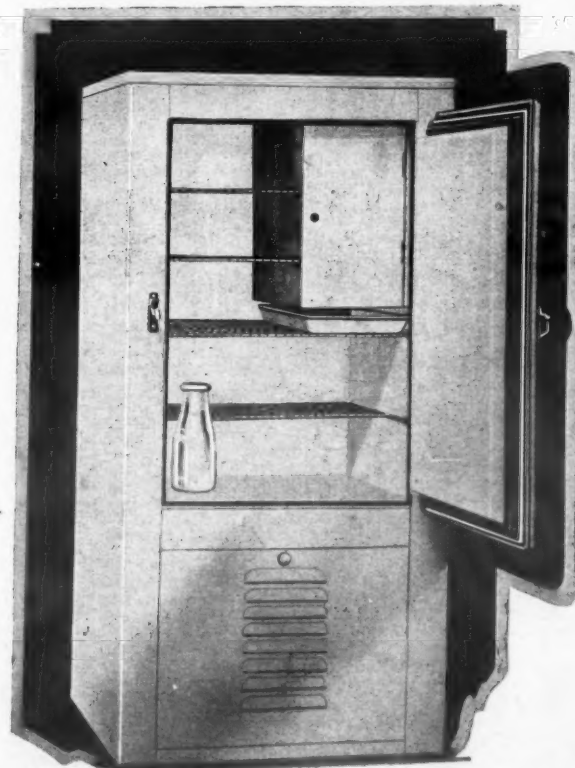
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Our plants are built to suit a man's place of business; fitted into it as plumbing is fitted into a house. It would be impossible for us to set up a model, except at very great expense. In fact, they would have no space available at their place to set up such a model.

I believe I am safe in saying that they have no one at the present time in their organization who has given himself any such experience. It seems to me there is one thing that can be done to aid in clarifying this code, and that is to adopt the American Standards Association code with additions which cover the use of multiple systems. I would like to recommend that, and I would like to ask, if you please, that we have two weeks time to submit written confirmation of these remarks, and extensions of them.

Commissioner Ladue: Your point, I take it, is essentially the same as that made by Mr. Starr.

Mr. Baer: Very much along the same line.

Mr. McKenna: We would concur in that last statement which Mr. Baer made, Mr. Chairman, as to the adoption of the National Code, supplemented by the multiple system of the Underwriters.

Commissioner Ladue: Instead of the Underwriters' Code?

Mr. McKenna: Supplemented by that.

Mr. Carpenter: Just to clarify the situation, I would just like to refer you to the definition of "multiple system" in the Underwriters' code.

Mr. Starr: Mr. Commissioner, I want to direct attention to one little matter that may have some bearing on your consideration of this subject.

Mr. Williams read a long list of different associations and organizations that helped to make up this code to which he referred. I do not know whether he mentioned the fact that the Fire Department of the City of New York had shared in making up that code, and that the code was given to the code by the Fire Department of New York who were present at the meeting of the committee that got up the code, and practical questions of fire protection were presented by the fire department and practical clauses were written into that code at the request of the fire department. I mention this, as I imagined this might add something to the weight of the code in the opinion of your department.

Commissioner Ladue: You are referring to the American Standards' Code.

Mr. Starr: Yes, the American Standards' Code.

Commissioner Ladue: You spoke of the New York code, Mr. Starr. Is the New York code acceptable?

Mr. Starr: Yes, sir. The New York code is practically the Standard code, with an addition in regard to the multiple system. That code is acceptable and Mr. Michaels of the fire department stated in a meeting the other night that it had been working very successfully so far in New York.

Commissioner Ladue: How about you, Mr. McKenna? Is the New York code satisfactory to your interests?

Mr. McKenna: If Mr. Starr would answer this one question, I might change my mind. Was one of the practical questions asked at those meetings in New York on behalf of the firemen, whether the fees would go to the firemen's fund.

Mr. Starr: I did not hear that.

Mr. McKenna: Do you know whether or not they do?

Mr. Starr: I do not.

Mr. McKenna: That is all.

Commissioner Ladue: But that does not answer my question.

Mr. McKenna: I will say, "No, we are not agreeable to it."

Commissioner Ladue: You do not like the New York code?

Mr. McKenna: We do not like it at all.

Statement of Mr. H. Harrison, representing Brunswick Kroeschell Company.

Mr. Harrison: The essential difference between the New York code and the A. S. A. code and the existing code that is considered here is that the New York code prohibits the multiple system.

Commissioner Ladue: Well, that is a rather essential difference. Just a moment, please. Unless you have some particular reason for bringing in the New York code, I will be glad to leave it out and go on with ours.

Mr. Harrison: We have this reason only, on a matter of clarification: The A. S. A. code also omits provisions or regulations with reference to the multiple system. In other respects the majority of opinion is that the A. S. A. code is a good code. I would therefore say that the study that the A. S. A. code has been given shows that there is no reason why the code should not go in in any community, as is the A. S. A. code admitted that the multiple systems needed some further study as to what is safe and what is not safe. The existing code recommended by the National Board, or as recommended by the Commissioner or as proposed by the Commissioner, may be the first step in finding out what is safe and what is not safe, and as appended to the A. S. A. code, a combination would be the solution for a code that would be safe and satisfactory to everybody concerned, and when changes are shown to be needed in the multiple system provisions, they could be taken care of later on.

Commissioner Ladue: Is there anyone else who wishes to be heard?

Statement of Mr. Thomas P. Bones, Washington D. C., representing Wardman Construction Company.

Mr. Bones: My name is Thomas P. Bones, I am Vice President of Wardman Construction Company.

We probably have, up to date, been one of the largest if not the largest purchasers of electrical refrigeration in the District of Columbia for apartment house and house use. We certainly feel that electrical refrigeration is probably one of the greatest steps forward for the comfort and health of apartment house dwellers that has come to our attention in a great many years. We sincerely hope that in drawing your code you will not put any unusual penalties on the installation of electrical refrigeration, whether it be multiple or whether it be individual. We hope that careful investigation will be given to this code, rather than take the factor of safety and just multiply it by five and think it is five times as safe, because that will retard the installation of electrical refrigeration, which is a great help to the health and comfort of the community.

As far as multiple installation is concerned, when it is put in under the right direction and supervision, it takes away many of the disadvantages of the individual. It removes noise and service to the individual apartments and all of those things. That is from the purchaser's standpoint. You can give what consideration you like to that, but we hope you will give the installation of electrical refrigeration every consideration, and particularly we ask do not put any unnecessary inspection or fees on it.

Commissioner Ladue: Do you want to

make any detailed comments on the proposed code, except the matter of fees? You think the fees, as laid out here, are likely to prove excessive?

Mr. Bones: That is my opinion. As to the details of the proposed code, I do not believe that a meeting of the mind of a set of successful American manufacturers will give you a bad code. I think if you can get representative manufacturers of electrical refrigeration in this country to agree on what is the right thing, they will give it to you in a manner that will be very useful and satisfactory. As a matter of fact, my observation, coming through from the infancy of this industry up to the present day, and with all of its experimental stage, it has not been decidedly hazardous, and personally I do not consider it any more dangerous than an illuminating gas installation or a gas stove as it is put together.

Commissioner Ladue: Thank you. Is there anyone else who desires to be heard?

Statement of Mr. C. L. McCrea, representing National Electrical Supply Company, Washington, D. C.

Mr. McCrea: I represent the National Electrical Supply Company. The National Electrical Supply Company has been for 35 years engaged in business in Washington, and we take the position that we are in favor of anything that will promote public safety. We think it has been evidenced today probably that there is no reasonable objection to anything that will promote public safety.

We have felt that the comments on the proposed code, section by section, have dealt largely with matters of definition, and not largely with principle. We, however, make this comment, that there are two trends in the manufacture of electrical refrigeration machinery. One of them is to manufacture the units, the component parts, and to then assemble the component parts by means of locally employed mechanics. We have at the present time no connection. Therefore, we are not commenting on it, except to pass to the District Commissioners our sincere appreciation of their interests in promoting the safety of installation. We think it is a good thing for the industry as a whole as well as for ourselves.

What we are afraid of in this business is that the whole system of electrical refrigeration, which has been growing at a tremendous pace, will be given a very definite setback unless some standards are introduced into the business to cover the installations.

With reference to the other trend in the industry, the manufacturers are, as far as possible, making complete units. That applies not only to ourselves but I think it applies equally to our good friends who have testified here today. The tendency is to make a unit that will be as trouble-proof as possible and will need little or no attention, and that can be made as completely portable as an electric fan. The General Electric unit that we sell has been made with that purpose. We say that to them in the sale of that unit with restrictions in the way of permits, other than the existing regulations for electrical wiring and, of course, the necessary plumbing regulations in case of water coolers, etc., is apparently a step that will retard the growth of the business and will make it more difficult for the consumer to buy electrical refrigeration.

Every manufacturer in the country for the last ten years has been striving to get a satisfactory unit at a reasonable price, and it has gotten down in all the manufacturing business to where they handle quantities so that even one dollar is an essential part of the sale price. We figure our profits down into fractions of a dollar on units. After the conclusion of the hearing I would like to have you check that statement with other people. So that any tax or any additional work that is put on the individual unit that is unnecessary is a bar to its further and continued sale.

Then again, of course, there are the difficulties of collecting the tax and the difficulties of expansion, etc. We would like to take exception to the individual unit, where manufactured and assembled completely by the manufacturer in such shape that it can be installed by common labor and not by skilled mechanics.

Commissioner Ladue: That is Class A, is it not?

Mr. McCrea: Yes, sir. It also goes into Class E. There are several classes that are touched by that. Class A is one. Class E and Class B I think also would come under that.

Mr. Williams: In connection with the unit system, Mr. Commissioner, as I understand it, the Underwriters' code classifies it as portable, permitting it to be connected with a flexible cord instead of a permanent connection. That is, a machine where it is inside of a cabinet, as a complete unit. I think I am right on that. If I am not right I would like to be corrected.

Mr. Kenna: May I inquire of Mr. McCrea whether I correctly understood him to say that he had filed with the Commissioners a statement embodying his views?

Mr. McCrea: I have filed a letter, and I will be glad to furnish you with a copy, if you wish.

Mr. McKenna: Thank you very much. I would appreciate it.

Commissioner Ladue: That is your letter of April 16th?

Mr. McCrea: Yes, sir.

Commissioner Ladue: Is there anybody else who desires to express any views on this code?

Mr. J. B. Churchill: I would like to endorse the remarks made by Mr. Harrison.

Commissioner Ladue: Is there anyone else?

Mr. Edwards: In view of the fact that the code you will develop here affects such a range of machines, and the remarks you have heard here today apply to the small unit and the other to the large unit, I would like to suggest that after you consider these written remarks, you submit again to the industry the drafts that you have reached; that after that draft has been submitted, that another opportunity be given for another hearing. The fact that I fear in the regulations covering the small units is that you will unduly restrict or limit the installation of the larger units. There are many industries, for instance, the chemical industry, the oxygen industry, with which I am closely associated, where some of the provisions that you have made, thinking particularly of the little machine, will be a decided hardship, and many of these processes where we use refrigeration are more or less secret, and we feel that if we adopt a standard machine, built up according to the A. S. A. or the boiler regulations, that any other restrictive restrictions are just a little unjust. I think, in order to have all parties satisfied, we should be given another opportunity. We would appreciate that.

Commissioner Ladue: We will take that under consideration.

Is there anyone else who desires to be heard?

Statement of Mr. John Lorsch, Washington, D. C., representing Operating Engineers' Union.

Mr. Lorsch: I represent the Operating Engineers' Union. In looking over this proposed code, I cannot find any distinction between the smaller, self-contained

units and the larger plants. It also appears that the only ones who will be allowed to install those units will be plumbers. In our experience, as operating engineers, we find that the machinists and engineers are better qualified to do this work than any of the other trades. They have been limited to low pressures, drain connections and things of that type. Our men, who are licensed and who have been operating high pressure plants, would be restricted under this code from making these necessary repairs. We believe they are more qualified to make the repairs than other trades. It would be safer to the public.

We would like to submit a small brief later on on the subject.

Mr. J. E. Hefflin, representing Hefflin Company: I may state for this gentleman's information that the jurisdictional board of awards, connected with organized labor, has conceded that all refrigerators of any kind are awarded to steamfitters, and as far as labor is concerned here in town, it is governed accordingly.

Mr. Lorsch: I do not believe this is the place to settle jurisdictional disputes between labor. The proper function of the steamfitter is servicing toilets, and when they smell ammonia they have to send for us.

Commissioner Ladue: It is about 12:15, and we would like to adjourn at 12:30. If anyone desires to be heard in the time remaining, we will be glad to hear you.

I would like to ask one question. As to the operation of the smaller units—not the individual units, but the multiple systems in apartment houses, and air conditioning systems in hotels, theaters, and such like, leaving out for the present the large ice-making plants to which Mr. Starr referred, is it the thought of the manufacturers that these appliances should be operated by licensed engineers, or is it a matter that the ordinary run of janitor can handle? What do you think about that, Mr. Smithson?

Mr. Smithson: Speaking of multiple systems, it has been our experience in the past that the engineer of an apartment house building, or the man known as the superintendent of the building, has charge of the equipment. Any service that is rendered is rendered by our own organization.

Mr. Daniel: Is that not regulated by law? Within the last year or two has there not been a law passed by Congress to the effect that such units—

Commissioner Ladue: Over a certain horsepower.

Mr. Daniel: Over a certain horsepower shall be operated by licensed engineers?

(Concluded on Page 21)

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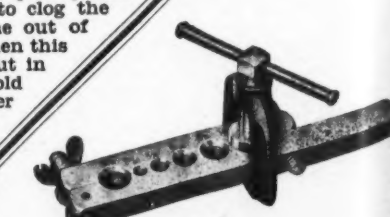


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Commissioner Ladue: Yes, sir.

Mr. Daniel: Many of these multiple units come under that law.

Mr. Lorsch: The law governing licensed engineers in the District does not make any limitations. I know, because I put that law through Congress. The Commissioners later on made regulations, and we do understand that it was limited to five horsepower. The Commissioners in their wisdom saw fit to make it nine horsepower. We have not raised any point on that matter. We have reserved that right. We do not desire to be objectionable or make unnecessary trouble, but the plain wording of the law gives no limitations at all. Any gasoline driven engine, any electrically driven machinery is fully covered by the engineer's license, but we are not raising the point on the small units, although we reserve that right, but that is the law as you have it on your statute books.

I do not question the power of this Commission to make regulations within the Act, but that opens the question again. So we have been reasonable, going along with the public, for the best interests of safety and life and limb and property.

Mr. Smithson: I would like to make a further explanation in the operation of multiple units. As far as the operation is concerned, it is fully automatic, but there are times when the motor should be oiled, or the motor needs wiping out, and that is the part which, in our experience, has been left to the engineer or superintendent of the building.

Mr. Williams: In New York the refrigeration regulations differentiate between "licensed" and "certified" men. A man applies for a certificate, which covers a man who is competent to take care of a little refrigerating machine, but would not presumably be competent to take care of a steam engine plant as he would have to do to get an engineer's license, under the rules.

Commissioner Ladue: Would you draw

the line somewhere—50 pounds or 100 pounds or 1,000 pounds?

Mr. Williams: They do draw the line in the New York code, but it seems to me in an apartment dwelling, where there are a great many families, there should be some provision for having a man that would be available in case of an emergency. I have gone through a great many of the basements of these buildings. I have walked all through them and have not met a soul. I have gone in where the refrigerating machinery was and all through the basement. There was nobody available. If there was a leak there, I do not know where you would find anybody. I presume that condition exists in other localities. It is better to have somebody that can be reached to do the proper thing in case of emergency. I have in mind such a man as a certified man, when such an emergency arises.

Mr. Smithson: In case service is needed, that is the reason we maintain a service organization. If a gas leak were to occur most anyone would detect it by the odor quickly, and according to these instructions they are supposed to call the service station for that attention.

Mr. McKenna: How prompt is that service?

Mr. Smithson: We are in a position to render service within an hour from the time the telephone call is received.

Mr. Wagner, representing Barber & Ross: I wish to inquire whether or not it is the purpose of this meeting to simplify the multiple installation code for the city of Washington or eliminate the multiple code?

Commissioner Ladue: Well, as far as I am concerned, there is no thought of eliminating it. It is a question of eliciting information which will enable us to prepare a suitable and satisfactory and workable code.

Mr. Wagner: Then I would like to submit that Barber & Ross heartily subscribe to the National Fire Underwriters' code.

Commissioner Ladue: Is there anyone else who desires to be heard?

Mr. Edwards: I always dislike to inject the question of labor into a discussion of this kind, but representing a number of concerns or corporations that have probably more installation of refrigeration in the United States than any other concern, in view of the fact that this code will be looked to as a model, we would certainly object to any specific definition that we must employ licensed engineers. Most of our plants are in charge of graduate mechanical engineers. We are perfectly willing to submit to any proper qualification that you may propose so that we can insure any authority or municipality that our men are qualified to operate these units, but we would distinctly object to any specific designation.

Mr. Heggie: I just wanted to ask whether anyone has any information as to how many compressors are in operation in the District of Columbia at the present time and how many fatalities, if any, have resulted, attributable to these refrigerating devices? I take it that this is a safety measure. However, one speaker has stated that the distributors figure on the very last dollar, and some of the fees rather indicate that the revenue idea is entering into the regulations. I think it is quite important, perhaps, as bearing upon the need for regulation, to know how many compressors there are here and how many fatalities have occurred in the District, in order that we may conclude better whether there is ample time to wait and then follow some modern system of regulation on this subject.

Commissioner Ladue: I do not know that we have information as to the number of installations in the city. The purpose of the license provision was not to raise revenue as such, but to provide sufficient income to carry the necessary inspection. If the fees as laid down are unnecessarily high to meet that purpose, then they are unnecessarily high for adoption. It was not the thought to make this a taxation measure for the raising of revenue.

As to the fatalities, I do not recall any. I think if there had been any fatalities, it would have been a matter of general public knowledge. I know of no fatalities.

Mr. McKenna: Mr. Commissioner, I may say that in connection with the previous case I had my office make an investigation, going through the fire records of the District of Columbia for three years, and in

no case was there a fatality in the District of Columbia due to either ammonia, SO₂ or any other refrigerant. As far as the records of Frigidaire are concerned, the executives tell me that they know of no fatality throughout the United States.

Mr. Richardson: (Representing International Association of Fire Fighters): I represent the International Association of Fire Fighters. Our organization is composed of the firemen, of course, throughout the United States and Canada, who have to face the elements of the electric refrigeration. In order to point out to our members the dangers, if any, in connection with electrical refrigeration we sent out to one or two of the plants, in order to acquaint ourselves with the conditions of the gas that is used in those plants. We have found from our experience and reports which we get in our office that the men were not familiar with the fact that SO₂ gas was used, and the men were always fearful of ammonia, and we have found, after our investigation of these plants that are used, that there is not such a great danger as we had anticipated, and we have found very little difficulty in running up against this gas in our experience in fighting fire so far.

As far as the multiple systems are concerned, we know very little about that, other than that we were afraid at first there would be 100 pounds or two or three hundred pounds in those systems, but we have found from our investigation that it cannot escape all at one time, so that we are not so fearful of the multiple systems which were mentioned. We are fearful of ammonia wherever we meet it; I will say that.

Mr. C. O. Thayer: As a builder of large refrigerating machinery, I simply want to put ourselves on record as endorsing the remarks made by Mr. Starr, Mr. Baer and Mr. Carpenter.

Mr. Baer: Mr. Commissioner, as to the matter of the danger from ammonia, may I recommend that you inquire of the United States Bureau of Mines who have, as I understand, very complete data as to the effect on human life of all of these gases.

Some data that I saw, and I think it is authentic, indicates that it takes about one-third as much SO₂ gas, breathed as ammonia, to kill. Of course, no one wants that much. We are seeking safety, but as to the relative effect, since ammonia was mentioned, I think that the record ought to contain the actual data gathered by an authority of that kind as to the effect of all of these gases.

Mr. Williams: I was going to answer the inquiry of a few minutes ago as to the extent of accidents that have occurred in the District of Columbia. I have a list of fifty-eight.

Commissioner Ladue: Have you any fatalities there?

Mr. Williams: No fatalities, but I understand the Rescue Squad was called out in every case. This is from the Fire Marshal of the District of Columbia. It is a record of accidents from February 13, 1926, to March 18, 1928.

Commissioner Ladue: We have that record here, of course. I do not want to start anything controversial here.

Mr. Williams: The question was asked and I wanted to furnish the information.

Commissioner Ladue: No. The question was asked whether there had been any fatalities. That has been answered.

If there is anything further to be said about the proposed regulations in the way of criticism or comment or suggestion, we will allow you a few moments more for that purpose.

Mr. Hurley: (Representing Barber & Ross): I do not know whether it has been brought to your attention, but Frigidaire, Kelvinator and Copeland have been put in installation in Washington, very near like the code that you propose, for the last year and a half. With the exception of the gas-tight box and some other few ventilating suggestions in your proposal, they have been installed in that fashion.

Commissioner Ladue: I am very glad to hear that.

Mr. Hurley: We did that without any municipal pressure, of our own free will and for the protection of the industry as a whole.

Commissioner Ladue: It was announced earlier that we would allow 14 days for statements or briefs. If that is not sufficient, if anybody would like a longer time, the Commissioners will give longer time if it is desired. Does anyone desire more than 14 days? Mr. Starr, you wanted a little longer than two weeks, did you?

Mr. Starr: I think it can be done in two weeks. It is a subject that has been threshed out for the last seven or eight years. I may be able to get through in that time. I may have to ask for a day or so longer.

Commissioner Ladue: How about you, Mr. Williams? You passed it all over to Mr. McKenna, did you not?

Mr. Williams: Yes, sir. I passed the buck. I will be gone for about three weeks, I imagine, and if he will forward it to my office I will get it in the west.

Mr. McKenna: I will be very glad to.

Mr. Williams: I think three weeks would be better than two weeks.

Mr. Daniel: We would like to ask you to extend the time granted me from two weeks to three weeks.

Then I would like to ask this question: It seems from the discussion of many features of the regulations that has been had here today, there will probably be some changes made. Would it not be better to wait until such changes are made before the ice-cream manufacturers submit their brief or ask for further hearing, in order that we may not consume time going over these things that have already been decided to be changed?

Commissioner Ladue: The only trouble with that is that I would anticipate that some of these changes, if made, would be the result of these suggestions that we are asking for. We are working rather in the dark if you ask us to make changes without having a definite statement of what the changes are that the interested parties desire.

Mr. Daniel: Well, I did not make myself clear. It appeared to the ice-cream manufacturers that the proposed code had been drawn up to cover other features of refrigeration than the refrigerating ice-cream boxes or larger machines. In the last analysis, those two features were said to be covered today. The regulations do not cover the other things. Therefore, there was a crisscrossing of regulation that I believe would not have occurred had the regulations been drawn up first to cover ice-cream boxes and the larger machines. Now if you are going to make changes in the regulations originally drawn, to cover multiple units, those changes might provide the very things we ask for and make it unnecessary for us to have a further hearing.

Chairman Dougherty: To make sure, had you not better file your brief covering the points discussed?

Commissioner Ladue: It will only take our time to read it and study it.

Let us make it three weeks, then. Unless there is something further, or anything that any one would like to put in the record, the hearing will stand adjourned.

(Whereupon, at 12:40 o'clock p. m., the hearing in the above-entitled matter was concluded and the Board adjourned.)

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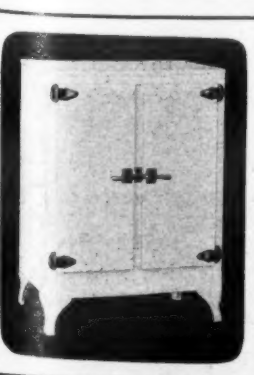
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Alaska Refrigerator Co., Muskegon, Mich.						Crystal Refrigerator Co., Fremont, Nebr.						The "Dry-Kold" Refrigerator Co., (Data continued from column 2)						Gibson Refrigerator Co., (Data continued from column 3)									
Model No.	Cu. Ft. For Food	Shelf Area Sq. Ft.	Exterior Dimensions			Exterior Finishes	Model No.	Cu. Ft. For Food	Shelf Area Sq. Ft.	Exterior Dimensions			Exterior Finishes	Model No.	Cu. Ft. For Food	Shelf Area Sq. Ft.	Exterior Dimensions			Exterior Finishes	Model No.	Cu. Ft. For Food	Shelf Area Sq. Ft.	Exterior Dimensions			Exterior Finishes
			W.	D.	H.				W.	D.	H.					W.	D.	H.				W.	D.	H.			
1640	16.50	24.6	55 1/2	24 1/2	70 3/4	Porc.	521	4.0	7.2	22 1/2	17 1/2	45"	Lacq.	2212	46	24	12'	30"	40"	"	988	4.4	7.3	31 1/2"	19 1/2"	46 1/2"	"
1240	12.69	22.0	44 1/2	24 1/2	70 3/4	"	522	4.0	7.2	22 1/2	17 1/2	40"	"	5710	79	24	12'	36"	53"	"	989	6.1	9.3	33 1/2"	21 1/2"	52 1/2"	"
940	9.0	14.0	36 1/2	24 1/2	70 3/4	"	523	4.0	7.2	22 1/2	17 1/2	36"	"	5712	40	24	12'	36"	51"	Enam.	775	3.4	5.6	24 1/2"	19 1/2"	41 1/2"	"
740	7.40	11.7	36 1/2	24 1/2	70 3/4	"	532	4.0	7.2	22 1/2	17 1/2	36"	"	806	40	24	12'	36"	51"	"	782	2.4	3.4	30"	17 1/2"	43 1/2"	"
1503	5.35	9.0	25 1/2	22 1/2	59 3/4	Lacq.	533	4.0	7.2	22 1/2	17 1/2	36"	"	810	65	46 1/2	10'	36"	51"	"	784	3.4	5.6	31 1/2"	19 1/2"	46 1/2"	"
1403	5.35	9.0	25 1/2	22 1/2	59 3/4	"	534	4.0	7.2	22 1/2	17 1/2	36"	"	812	79	58	12'	36"	51"	"	786	4.4	6.2	31 1/2"	19 1/2"	46 1/2"	"
1060P	5.65	9.0	24 1/2	22 1/2	60"	Enam.	552	5.3	9.5	27"	22"	32"	"	1010	41	25	10'	33"	43"	"	788	4.4	6.2	31 1/2"	19 1/2"	46 1/2"	"
1060	5.65	9.0	24 1/2	22 1/2	60"	"	553	5.3	9.5	27"	22"	32"	"	1012	50	32	12'	33"	43"	Oak	789	6.2	9.5	33 1/2"	21 1/2"	49 1/2"	"
1054P	4.30	7.42	24 1/2	22 1/2	54"	"	554	5.3	9.5	27"	22"	32"	"	3410	41	25	10'	34"	43"	"	4114	14	20	48 1/2"	27 1/2"	65 1/2"	G. Oak
1054	4.30	7.42	24 1/2	22 1/2	54"	"	555	5.3	9.5	27"	22"	32"	"	3412	50	32	12'	34"	43"	"	4116	20.5	25	61 1/2"	27 1/2"	72 1/2"	"
1048P	4.54	6.8	26 1/2	22 1/2	48"	"	556	5.3	9.5	27"	22"	32"	"	Stock Florist Refrigerators						4120	19.5	25	50 1/2"	29 1/2"	76"	"	
1048	4.54	6.8	26 1/2	22 1/2	48"	"	557	5.3	9.5	27"	22"	32"	"	215	60	29	89"	33"	76"	Enam.	4122	19.5	25	50 1/2"	29 1/2"	76"	"
514P	5.98	9.95	30"	20"	36"	"	558	5.3	9.5	27"	22"	32"	"	215D	60	29	89"	33"	76"	"	4126	25.5	30	58 1/2"	29 1/2"	80"	"
514	5.98	9.95	30"	20"	36"	"	559	5.3	9.5	27"	22"	32"	"	F6096	68	13	60"	36"	96"	"	4128	25.5	30	58 1/2"	29 1/2"	80"	"
512P	5.07	6.12	26 1/2	20 1/2	36"	"	560	5.3	9.5	27"	22"	32"	"	F7096	80	21	70"	36"	96"	"	4130	25.5	30	58 1/2"	29 1/2"	80"	"
511P	3.85	4.56	24 1/2	18"	36"	"	561	5.3	9.5	27"	22"	32"	"	F1896	120	29	8"	3"	9"	"	4134	34.5	75	75"	30 1/2"	72 1/2"	"
511	3.85	4.56	24 1/2	18"	36"	"	562	5.3	9.5	27"	22"	32"	"	F9108	144	33	9"	3"	9"	"	4136	34.5	75	75"	30 1/2"	72 1/2"	"
46P	4.00	6.7	22 1/2	18 1/2	47 1/2	"	563	5.3	9.5	27"	22"	32"	"	F1209	208	53	12'	3 1/2"	9"	"	4140	50.5	50	86 1/2"	32 1/2"	80"	"
46	4.24	7.0	22 1/2	18 1/2	47 1/2	"	564	5.3	9.5	27"	22"	32"	"	Hotel, Restaurant and Hospital Refrigerators						4142	50.5	50	86 1/2"	32 1/2"	80"	"	
47P	5.50	8.82	25 1/2	20 1/2	49"	"	565	5.3	9.5	27"	22"	32"	"	430	18	7	43"	30"	57"	Oak	4150	50.5	50	86 1/2"	32 1/2"	80"	"
47	5.64	9.2	25 1/2	20 1/2	49"	"	566	5.3	9.5	27"	22"	32"	"	5496D	28	11	54"	28"	60"	"	4152	50.5	50	86 1/2"	32 1/2"	80"	"
Belding-Hall Co., Belding, Mich.						Paul J. Daemicke Co., Chicago, Ill.						Elkins Refrigerator & Fixture Co., Elkins, W. Va.						Gurney Refrigerator Co., Fond du Lac, Wis.									
Domestic Cabinets						Display Cases						Refrigerators						Models With Storage Compartment in Base									
C-1	5.45	7.3	24 1/2	21 1/2	36"	Lacq.	64	18	18	6'	37"	"	190	18	18	6'	37"	"	1001	4.2	8.9	22"	20"	36"	"		
C-2	5.0	6.4	24 1/2	18 1/2	36"	"	64	24	24	6'	37"	"	190	24	24	6'	37"	"	1002	4.8	9.8	24"	20"	36"	"		
C-3	5.0	6.4	24 1/2	18 1/2	36"	"	64	30	30	6'	37"	"	190	30	30	6'	37"	"	1003	5.4	10.7	26"	20"	36"	"		
C-4	5.7	8.4	25 1/2	19 1/2	48"	"	64	36	36	6'	37"	"	190	36	36	6'	37"	"	1004	6.0	11.6	28"	20"	36"	"		
C-5	4.1	8.9	30 1/2	20 1/2	50"	"	64	42	42	6'	37"	"	190	42	42	6'	37"	"	1005	6.6	12.6	30"	20"	36"	"		
C-6	8.1	8.9	30 1/2	20 1/2	50"	"	64	42	42	6'	37"	"	190	42	42	6'	37"	"	Herrick Refrigerator Co., Waterloo, Iowa								
CL-2	5.0	6.4	24 1/2	18 1/2	41 1/2	"	64	42	42	6'	37"	"	190	42	42	6'	37"	"	554	6.91	9.27	36"	21"	50 1/2	"		
CL-3	5.5	8.4	24 1/2	18 1/2	41 1/2	"	64	42	42	6'	37"	"	190	42	42	6'	37"	"	555	8.92	12.25	38"	21"	52 1/2	"		
SK-5	6.17	7.60	26 1/2	22 1/2	57 1/2	"	64	42	42	6'	37"	"	190	42	42	6'	37"	"	559	12.0	17.91	42"	25"	60 1/2	"		
SK-6	7.0	8.0	26 1/2	22 1/2	57 1/2	"	64	42	42	6'	37"	"	190	42	42	6'	37"	"	511	15.17	18.7	47 1/2	30 1/2	65"	"		
SK-7	9.7	9.6	34 1/2	22 1/2	62"	"	64	42	42	6'	37"	"	190	42	42	6'	37"	"	512	20.00	23.5	51 1/2	30 1/2	70 1/2	"		
SK-15	17.0	22.0	50 1/2	22 1/2	62"	Porc.	64	42	42	6'	37"	"	190	42	42	6'	37"	"	514	23.8	26.5	55 1/2	30 1/2	73"	"		
SP-5	6.17	7.60	26 1/2	22 1/2	57 1/2	"	64	42	42	6'	37"	"	190	42	42	6'	37"	"	516	31	32.5	62"	32 1/2	78"	"		
SP-6	7.0	8.0	26 1/2	22 1/2	57 1/2	"	64	42	42	6'	37"	"	190	42	42	6'	37"	"	580	25.71	34.16	66"	26 1/2	68"	"		
SP-7	9.7	9.6	34 1/2	22 1/2	62"	"	64	42	42	6'	37"	"	190	42	42	6'	37"	"	528	43.5	37.62	86"	31"	72 1/2	"		
SP-9	11.2	13.3	34 1/2	22 1/2	62"	"	64	42	42	6'	37"	"	190	42	42	6'	37"	"	90	12.36	17.37	48"	27"	50 1/2	"		
SP-15	17.0	22.0	50 1/2	22 1/2	62"	"	64	42	42	6'	37"	"	190	42	42	6'	37"	"	944	6	9.12	36"	21"	50 1/2	"		
800B	6.0	8.0	26 1/2	22 1/2	57 1/2	"	64	42																			

SIZES OF STOCK DOMESTIC AND COMMERCIAL CABINETS

Model No.	Cu. Ft. For Food	Shelf Area Sq. Ft.	Exterior Dimensions			Exterior Finishes
			W.	D.	H.	

Illinois Refrigerator Sales Co., Morrison, Ill.

NOTE—All 36" height models may be equipped with either 8 1/2" or 10 1/2" enamel or porcelain legs.

1104	3.5	7.5	22"	20 1/2"	36"	Lacq.
1100	4	8.25	24"	20 1/2"	36"	"
1101	4	9	26"	20 1/2"	36"	Porc.
1201	4	9	26"	20 1/2"	36"	"
1105	5.2	8.5	30"	19 1/2"	36"	Lacq.
1205	5.2	8.5	30"	19 1/2"	36"	"
700	4	6	25 1/2"	19 1/2"	50"	"
701	4.3	6.8	36"	21"	33 1/2"	"
706	6.5	8	35 1/2"	20 1/2"	60 1/2"	"
1282	8.6	10.5	38"	21 1/2"	65 1/2"	Porc.
1492	6.5	8	35 1/2"	20 1/2"	60 1/2"	"
1494	8.6	10.5	38"	21 1/2"	65 1/2"	"
1496	10.5	14	41"	23"	66"	"
1283	6.5	8	35 1/2"	20 1/2"	60 1/2"	Lacq.
1285	8.6	10.5	38"	21 1/2"	65 1/2"	"
1493	6.5	8	35 1/2"	20 1/2"	60 1/2"	Porc.
1495	8.6	10.5	38"	21 1/2"	65 1/2"	"
1497	10.5	14	41"	23"	66"	"

Jewett Refrigerator Co., 2 Letchworth St., Buffalo, N. Y.

4054	7	8 1/2	40"	25"	54"	Ash
4066	10	12	44"	25"	60"	Porc.
4460	10	12	44"	25"	60"	"
4468	10	12	44"	25"	60"	"
4860	12	13	48"	25"	72"	"
5260	12	13	48"	25"	72"	"
5268	13	15	52"	25"	72"	"
4472	13	15	52"	25"	72"	"
4872	15	18 1/2	56"	25"	72"	"
5272	17	19	60"	25"	72"	"
6672	19	32	66"	25"	72"	"
7072	21	36	70"	25"	72"	"
7472	22 1/2	40	74"	25"	72"	"
7872	24	41	78"	25"	72"	"
4432	4 1/2	10	34"	25"	32"	"
4432	7	10	34"	25"	32"	"
4490	13	20	44"	25"	90"	"
5290	17	25 1/2	52"	25"	90"	"
44105	17	27	44"	25"	105"	"
52105	25	34	52"	25"	105"	"
6690	19	30	66"	25"	90"	"
7890	24	40	78"	25"	90"	"
66105	24	40	66"	25"	105"	"
78105	30	53	78"	25"	105"	"
LP710	7	10	35"	23"	62"	Lacq.
PE710	7	10	35"	23"	62"	Porc.
LP912	9	12	35"	23"	68"	Lacq.
PE912	9	12	35"	23"	68"	Porc.
LP1216	12	18	51 1/2"	23"	62"	Lacq.
PE1216	12	18	51 1/2"	23"	62"	Porc.
LP1519	15	22	51 1/2"	23"	68"	Lacq.
PE1519	15	22	51 1/2"	23"	68"	Porc.

Leonard Refrigerator Co., Grand Rapids, Mich.

1563	5.61	9.94	37 1/2"	21 1/2"	57 1/2"	Lacq.
1564	7.59	11.39	37 1/2"	22"	66"	"
2452	4.17	6.44	23 1/2"	18 1/2"	41 1/2"	"
2453	5.47	8.82	23 1/2"	18 1/2"	41 1/2"	"
2454	6.00	9.88	23 1/2"	20 1/2"	41 1/2"	"
2253	3.97	6.82	25 1/2"	19 1/2"	48"	"
2254	4.72	8.08	29 1/2"	19 1/2"	48"	"
2252	3.53	5.35	24"	18 1/2"	54 1/2"	Porc.
0363	4.6	6.75	27 1/2"	22 1/2"	56 1/2"	"
1363	4.7	7	26 1/2"	22 1/2"	56 1/2"	Lacq.
4363	4.399	6.95	26 1/2"	23 1/2"	54 1/2"	"
1383	4.399	6.2	23 1/2"	19 1/2"	54 1/2"	"
2282-L	4.399	6.2	23 1/2"	19 1/2"	36 1/2"	"
1282-L	4.399	6.2	23 1/2"	19 1/2"	36 1/2"	"
1283-L	4.399	6.2	23 1/2"	19 1/2"	36 1/2"	"
1283-L	4.399	4.038	23 1/2"	19 1/2"	47 1/2"	"
1283-L	4.399	4.038	23 1/2"	19 1/2"	47 1/2"	"
1283-L	4.399	4.038	23 1/2"	19 1/2"	47 1/2"	"
0763	5.27	8.65	34"	21"	61 1/2"	Porc.
0764	6.10	10.57	35 1/2"	21"	66"	"
0764-G	6.10	10.57	35 1/2"	21"	66"	"
0463	5.27	8.65	34"	21"	47 1/2"	"
0464	6.10	10.57	35 1/2"	21"	51 1/2"	"
0466	8.34	13.40	39 1/2"	21"	54 1/2"	"
0467	9.96	14.73	41 1/2"	23 1/2"	56 1/2"	"
0468	13.30	20.1	45 1/2"	24 1/2"	60 1/2"	"
0669-G	16.97	25.25	56 1/2"	23 1/2"	59"	"
0670	22.52	32.18	62 1/2"	24 1/2"	61"	"
0432	3.68	5.78	32 1/2"	18 1/2"	41 1/2"	"
0433	5.13	8.36	33 1/2"	20 1/2"	47"	"
0434	5.59	8.357	33 1/2"	20 1/2"	51"	"
3463	5.31	8.65	34 1/2"	21 1/2"	47 1/2"	Oak
3466	6.01	10.45	36 1/2"	21 1/2"	52 1/2"	"
3467	8.43	13.60	39 1/2"	23 1/2"	53 1/2"	"
3468	9.90	14.70	42 1/2"	23 1/2"	57 1/2"	"
3468	13.25	18.70	45 1/2"	25 1/2"	61"	"
4452	3.82	6	33 1/2"	19"	42 1/2"	Ash
4453	5.13	8.36	34 1/2"	21"	47 1/2"	"
4454	5.58	8.36	34 1/2"	21"	51 1/2"	"
4456	8.16	13.13	39 1/2"	23 1/2"	55"	"
4457	9.53	14.18	42 1/2"	23 1/2"	57"	"
7242	2.44	4.75	21 1/2"	17 1/2"	48"	Hardw'd
7243	3.28	6.44	26 1/2"	18 1/2"	48"	"
7244	3.90	7.65	30 1/2"	18 1/2"	48"	"
7441	3.04	5.15	27"	17 1/2"	40"	"
7442	4.21	6.50	32 1/2"	17 1/2"	41"	"
7443	5.43	8.79	33 1/2"	19 1/2"	46"	"
7444	5.92	8.80	33 1/2"	19 1/2"	50"	"
6442	3.66	5.78	30 1/2"	17 1/2"	46"	"
6443	5.05	8.23	33 1/2"	19 1/2"	46"	"
6444	5.50	8.23	33 1/2"	19 1/2"	50"	"
9111	19.64	22.80	52 1/2"	27"	74 1/2"	Ash
9114	32.71	31.34	78"	27"	74 1/2"	"
9111	20.94	23.76	52 1/2"	27"	74 1/2"	Hardw'd
9112	26.27	31.65	56 1/2"	27"	74 1/2"	"
9727	47.79	28.58	78"	31 1/2"	74 1/2"	"
9816	43.66	40.62	78"	31 1/2"	74 1/2"	"
9877	47.48	30.68	83 1/2"	31 1/2"	74 1/2"	"
9818	54.22	142.896	85 1/2"	33 1/2"	80"	"
9414	35.9	94.453	60 1/2"	33 1/2"	80"	"

Ligonier Refrigerator Division, Hussmann-Ligonier Co., Ligonier, Ind.

840A	96"	30"	38"			
1040A	120"	30"	38"			
1240A	144"	30"	38"			
1440A	168"	30"	38"			
1640A	192"	30"	38"			
647B-Top	73 1/2"	39 1/2"	27 1/2"			
1047B-Top	97 1/2"	39 1/2"	27 1/2"			
1247B-Top	111 1/2"	39 1/2"	27 1/2"			
1447B-Top	125 1/2"	39 1/2"	27 1/2"			
1647B-Top	149 1/2"	39 1/2"	27 1/2"			
843B	8"	30"	43"			
1043B	10"	30"	43"			
1243B	12"	30"	43"			
1443B	14"	30"	43"			
1643B	16"	30"	43"			
440	86"	32"	75"			
441	86"	32"	75"			
340	86"	32"	75"			
218	72"	32"	75"			
219	60"	32"	75"			
220	60"	32"	75"			
221	51"	32"	75"			
442	44"	32"	64"			
443	83"	32"	82"			
444	141"	32"	75"			
445	86"	32"	103"			
446	86"	32"	75"			
447	86"	32"	75"			
448	86"	32"	75"			

(Data continued at top of next column)

Ligonier Refrigerator Division, Hussmann-Ligonier Co.

(Data continued from column 1)

544	86"	32"	75"			
545	72"	32"	72"			
518	60"	32"	75"			
519	60"	32"	75"			
520	51"	32"	75"			
521	51"	32"	75"			
546	44"	32"	64"			
100L	38"	32"	64"			
150L	42"	24"	56"			
200L	45"	26"	60"			
250L	48"	26"	64"			
535	84"	42"	84"			
547	64"	36"	79"			
548	92"	36"	79"			
537	42"	30"	56"			
1058	120"	60"	96"			
8510	72"	60"	118"			
64 1/2	72"	54"	114"			
649	72"	48"	108"			
75	84"	60"	120"			
86	96"	72"	120"			
88	96"	72"	120"			
869	96"	72"	108"			
870	96"	72"	108"			
108	120"	96"	120"			
57	60"	84"	96"			
68	72"	96"	96"			
58	60"	96"	84"			
78	84"	96"	84"			

McCray Refrigerator Sales Corp., Kendallville, Ind.

411	67.54	35.9	73 1/2"	2' 8 1/2"	6' 4"	
410	67.54	43.6	73 1/2"	2' 8 1/2"	6' 4"	
405	38	21.62	45 1/2"	2' 8 1/2"	6' 4"	
720	42.2	32.75	6' 1/2"	2' 5 1/2"	6' 4"	
406	30	25.25	46 1/2"	2' 5 1/2"	5' 6"	
96	55.11	19.5	5 1/4"	2' 11 1/4"	6' 6"	
185	339.42		8"	6"	10"	
182	470.81		8"	6"	10"	
181	602.20		10"	8"	10"	
160	339.42		8"	6"	10"	
161	231.25		7"	5"	9' 10"	
162	193.75		6"	5"	9' 10"	
190	314.73		8"	6"	9' 10"	
165	333.25		8"	6"	9' 10"	
459	107.70		6"	5"	7' 6"	
66	177.95		6"	6"	7' 6"	
564	90.91	29.5	5"	3' 6"	8"	
85	24.18	14.6	8"	3' 4"	4' 2"	
105	30.62	18.6	10"	3' 4"	4' 2"	
125	37.07	22.6	12"	3' 4"	4' 2"	
505			5"	34"	50"	
508	18.75	13.59	8"	3' 1 1/2"	4' 3/4"	
510	23.40	17.21	10"	3' 1 1/2"	4' 3/4"	
512	28.05	20.84	12"	3' 1 1/2"	4' 3/4"	
840	31.60	25.5	8"	29"	40"	
1040	41.29	26.8	10"	29"	40"	
1240	50.75	33.9	12"	29"	40"	
M-150		12	40"	24"	55 1/2"	
332	59.1	38.7	7"	2' 8"	6' 2"	
320	41.5	36.35	5 9/16"	2' 6"	6'	
375	30.5	24.73	4 3/4"	2' 10 3/4"	6'	
1135	88.56		7 9/16"	2' 10 3/4"	7"	
120	44.2	36.5	6 1/8"	2' 5 3/4"	6'	
75	26.5	22.75	4 5/8"	2' 5 3/4"	6'	
171	273.72		10"	5"	8'	
2188			7 1/2"	5"	9' 10"	
3175			12"	5"	11"	
1			3 1/2"	25 3/4"	34"	
2			47 3/4"	25 3/4"	34"	
3			65 1/2"	25 3/4"	34"	
5			3 6"	2' 7"	2' 8"	
10			6 5"	2' 7"	2' 8"	
D-505			5"	34"	50"	
496	55.11	28.9	5 3/4"	2' 11 1/4"	6' 6"	
600	91.59	16.8	6 7/8"	3' 1 1/2"	8' 6"	
620	54.50	17.64	7 1"	2' 5"	6' 8"	